CHAPTER 1
NETWORKING AND OPEN STANDARDS

• **Network:** A Computer Network is a number of computers
interconnected by one or more transmission media.

• **Need of Networking:**

Resource Sharing ,,File and data sharing .data security and centralized dependency
High Reliability , Communication Media   Cost factor

 Network Interface Unit (NIU) A network interface unit is interpreter that helps in establishing the

communication between the server and the client.

MAC Address:- It is the physical address assigned by NIC manufacture

10:B5:03 :63 2E FC First three are manufacture ID and Other three are card_No

 IP Address:- Every machine on a TCP/IP Network has a unique identifying no. called an IP Address.

Example 216:27:61:137

Domain Name:-It is a unique name assigned to a website. It must be unique.

WWW.CBSE.NIC.IN

Domain Name resolution :   It refer to the process of obtaining corresponding IP Address from a domain

Name. (web site)

Topology:- It refer to the pattern of Interconnection.

Ring Topology: In a ring topology each node is connected to two and only two neighboring nodes. Data is accepted from one of the neighboring nodes and is transmitted onwards to another.

Advantage : Short cable length. , Suitable for optical fiber ,

Disadvantage :- Difficult to add computers ,More expensive , **If one computer fails, whole network fails**

Star Topology: A star topology is designed with each node connected directly to the server
via hub or switch.

Advantage :- Easy to install and wire , Easy to connect New Nodes ,One malfunctioning node does not affect the
rest of the network.

Disadvantage :- Required more cable length than a linear topology. , Central Node dependency

BUS Topology: A Bus topology consist of Single length of Transmission Medium(co-axial cable) on to which every node is connected

Advantage :- Short Cable Length, easy to extend.

Disadvantage :- Fault diagnosis is difficult. Repeaters are required.

TYPE of Network :- LAN, WAN, Man, PAN – from Book
Transmission Media:- Guided Media :   Twisted Pair, Co-Axial Cable, Optical Fibre: From Book
(definition / one advantage/ one disadvantage)
Unguided Media : Radio wave, Microwave and satellite /Infrared/ Bluetooth/ wi-FI
(definition / one advantage/ one disadvantage)

NETWORK DEVICES

Ethernet Card or NIC or NIU:A NIC(Network Interface card) is a computer circuit board or card that is installed in computer so that it can connected to network.

Hub: Hub is a device used to connect several computers together

Switches : Switches are smart hubs that send data directly to the destination rather than everywhere within network. It prevent network traffic. It is responsible for filtering/transforming data.

Repeaters :A repeater is a device that amplifies a signal being transmitted on the network.

Since a signal loses strength as it passes along a cable, it if often necessary to amplify the signal. It is used in long distance transmission

Modem:

A device that that convert digital signal into analog at sending end(Modulate) and

analog signal into digital at receiving end(demodulate) is known as Modem.

Router:

A device that can handle different protocol. It is used to connect multiple networks irrespective of their protocol.

Gateway:

A device that connects dissimilar networks. It is used to built a connection between local network and external network.

Bridge:

A device that used to connect two different segment of same LANs.

Network Security; INTRUSION PROBLES/ ACCESS ATTACK

Snooping:- It refer to unauthorized access of some one's data, emails, computer activity or data communication. –Example Capturing of Login/Id and Password/ Monitoring of key strokes/ observing emails.

Evesdroping:- It is the act of secretly listening /intercepting someone's else private communication/information/data (capturing of credit card info/ emails/ phone calls)

Solved Questions:

Q1. Write two disadvantages of networks.

Ans : Disadvantages of networks:
  i. Sophisticated Hardware and software technology is required.
  ii. Expensive to install network.

Q.2 What are denial of services attacks?

Denial-of-services attacks:

DOS are those attacks that prevent the legal users of System from accessing or using the resources, information or capabilities of the system. It may be of following types:

•   Denial of Access to Information: Such attacks cause deletion or changing of important

   information to non-readable format.

   • Denial of Access to Applications: Such attacks make the applications unusable or

unavailable

for legal user of the system.

• Denial of Access to Communications: Such attacks includes cutting of communication wire,

jamming radio communications, flooding a system with junk mail.

Q.3. How can you prevent/ counter threats of network security?

Ans:- The combination of Identification, authorization and authentication can secure your system.

Authorization:- Asking for legal login ID can secure for system.

Authentication: It refer to password protection. When any person try to use the system , then he must provide a valid password.

Firewall:- A system is designed to prevent unauthorized access to and from a private network is called firewall.

Chapter 2
FREE AND OPEN SOURCE SOFTWARE

Key Points:

Free Software: It means software is freely accessible, free to use, changed, improved, copied, and distributed without any payments.

Four kinds of freedom: ► Freedom to run the program for any purpose ► Freedom to redistribute copies.

► Freedom to study how the program works ► Freedom to improve the program and release your improvements to the public

Open Source Software:

Definition: In open source software source code is freely available to customer. Here company can receiving the payments for concerning supports/ further development.

Features:

1. Freedom to run and use the software ,2. Modify the program ,3. Redistribute copies of either original or modified program (without paying royalties to previous developers). , Its source code is available.

 FOSS (free and open source software): This terms is used for the softwares which are both free and open source.

OSS and FLOSS

► OSS- (**open source software**) Source code is available

(Open source modified and redistributed software) free of cost or with nominal charge.

► FLOSS- (free libre and open source software)

FSF (free software foundation)

•   Non-profit organization created for the purpose of supporting free software movement

GNU (free and open source) –GNU's Not Unix

•   Objective: To create a system compatible to UNIX but not identical with it.

•   Now it offers a wide range of software, including applications

Proprietary software (neither open nor freely available)

• Definition- It is under the control of a company/owner. Further distribution

\requires special permission by the supplier . License is need for this type of softwares.

• Source code is not available.

Freeware

• Free of cost ,• Copying and further distribution but not modification.

• Source code is not available , Example Internet Explorer

Shareware

• Right to redistribute copies

• After a certain period of time license fee should be paid. • Source code is not available.

• Modifications are not possible.

• Objective- to increase user's will to pay for the software. Limits functionality after a trial

period of 1-3 months. (Demo Versions softwares)

Important Software's

LINUX

• Linux: - It is very popular Operating system. It is . free and open source software.

• Linux is a part of popular web server program LAMP (Linux, apache, MySql, PHP).

Mozilla

• It is a very popular web browser. It is Freeware

• No source code available

Apache Server

• The most common web server software on the Internet.

• Apache is designed as a set of modules, enabling administrators to choose features they want to use

to meet their specific needs.

• Apache HTTP server is an open source web server.

PHP

• PHP stands for PHP:- Hypertext Preprocessor.

• No source code available It is used as server side program and developing dynamic web applications.

Standards:

Standards refers to a set of rules or requirements which are approved by recognized body. For ex.: PDF (Portable documents format) is a technical standard widely used by the industry. They are of two types: Proprietary Standards and Open Standards.

Proprietary standards are those for which users have to buy license to use them. For e.g. MS

Office format .doc, .ppt, .xls etc

Disadvantage Proprietary Standards

1. Recipient may not able to read the files. :-
2. Software is under the control of vendor/ company

Advantage Proprietary Standards

1. You may transmit confidential information .

2. Customer supports / updates are regularly available.

Common Proprietary standards

MS Office format (.doc, .ppt, .xls, docx, xlsx, pptx) and window media formats (.wma, .wmv) , apple media format (,mov) , Adobe flash files (SWF), Audio Format (.MP3

Open Standards are internationally accepted technical standards that guarantee that data can be exchanged across platforms and for any applications. Open is feely open to all.

Advantages of Open Standards:

Making the data accessible to all.

It ensures data is application and platform independence.

Disadvantage Open Standards:

Most open source software applications are not reliable

Most of the applications are not reliable and you cannot run critical business operations on them.

No guarantee of updates

Since you are not paying for the open source software nobody is bound to give you regular updates. You can get stuck with the same old version for years without ever getting an update.

No support exists for open source software

Once you decide to use **open source software** you are on your own.   No help documents and manuals are made available since the software is being changed every second week.

Common Open standards:-

ASCII-(Amerencian standards for information interchange) , HTML(hypertext Markup Language)

DVI(Device independent format), ODF(Open document format), JPEG(Joint picture Group Expert)

PNG(Portable Network Graphics) , SVG(Scalable Vector Image) , OGG Vorbis , FLAC(Free Lossless Audio Codec)

Ogg Vorbis: • It is a new audio compression which is open format. . It is developed to replace Proprietary format like mp3, mpeg-4 formats, WMA and is completely free. Hence it imposes no restrictions on its usage, types of usage, distributions, redistribution etc.

Indian Language Computing:

• Indian Language computing refers to ability to interact in diverse Indian language on electronic

system.

How to represent character in Memory?

• ASCII: American Standard Code for Information Interchange is widely used alphanumeric

code in most microcomputers and minicomputers and in many mainframes. It is 7 bit code hence it can represent standard 2^7 =128 characters.

ISCII:

• Indian Standard Code for Information Interchange (ISCII) is an eight bit code capable of

coding 256 characters. It retains all ASCII characters and also offers coding for

Indian Scripts.

Unicode

    • Unicode provides a unique number for every character, no mater what the platforms, no matter

what the program, no matter what the language. Unicode standard has incorporated Indian Scripts under the group named Asian scripts. **Indian scripts included as Devnagari, Bengali, Gurumukhi, Gujarati, Oriya, Tamil, Telgu, kannada,and Malayalam.**

Fonts:

    • A Font refers to a set of displayable text characters called glyphs, having specific style and

    size. There are two categories of font: **True Type Font** and **Open Type Font**.

    • **True Type Font**: (TTF) It is developed by Apple and licensed to Microsoft. It is 8 bit font which is compatible with Microsoft Windows and MAC OS. It is proprietary software.

    • **Open Type Font**: It is the extension of the True Type Font Format which is 16 bits font and support 65536 Unicode characters.

Indian Language Text Entry:

Many Tools / software have been developed to facilitate the typing of Indian Language text. There are two types text entries:

    • **Phonetic Text Entry/ transliteration**.: Words typed as per their pronunciation in English script and later on converted to Corresponding (Hindi/Gujarati) language work is known as **phonetic text entry or transliteration**.

        Mera desh mahaan is converted in to मेरा देश महान

    • **Key map based text entry:** When you type text from a keyboard having key mapping of Indian language characters, is known as key map based text entry.

Q1. What is openoffice.org?

Ans It is Office an application suite which is free software and directly competes with Microsoft

Office. It is compatible with MS Operating System, UNIX, MAC OS.

Q2. Define ODF.

Ans : ODF is an Open Document file Format. It is open, XML based file format used for exchanging office documents such as memos, reports, spreadsheets, database, charts and presentations.

ODF Extensions;-

. odt - for text document (Word files)

.ods – for spreadsheet (excel files)

.odp - for presentation files (power point)

.odg - for graphics file(picture file)

.odb - for database (database files)

Chapter 3   JAVA REVISION TOUR-1

Rapid Application Development :- It describe a method of developing software with the help of pre programmed tools or controls.

Basic of GUI:-
   (1) Event :- It refer to the occurrence of an activity.
   (2) Message :- It describe the message /request sent to the application.
JFC:- JFC stands for java foundation classes. It is used to implement GUI in Java.
Swing API is one of the important feature of JFC. Buttons,Labels, Textfields are all part of Swing API.

TextInteraction in Java

   1.   Use of getText :- This method return the text currently stored in GUI
        Component. Fox example
 String name = nameTF.getText( ) ;

   2.   Parse Method:- This method is use to convert string in to different numeric
        type.

        int age = Integer.parseInt(ageTF.getText( )) ;   or

        float salary = Float.parseFloat(salaryTF.getText( )) ;
   3.   setText ( ) :- This method is used to change the text of a GUI Control.

        NameTF.setText("XII-C");

Constant :- Constant will not change during the program execution. Final word is used for this purpose.
final float salary= 30000;
Advantage:- Make the program easier to read. , Changes in the value of variable at one place only.

Operators In java
Arithmetic Operators : +,- , *, / , %
Increment /Decrement Operator :-
Prefix :-In which operator Comes First   example ++a

Postfix:-In which operator comes last example a++

Relational Operators
There are six relational operators –they are used in comparing two values
> Greater Than, < Less Than , >= G.E, <= L.E.
= = Equal to , != Not Equal to
Logical Operators
There are three logical operators
&& means AND, || means OR , ! means Not
Example rollno>=10 && rollno <=50 age>=20 || marks>=70

!(fees>=2000)
And will give you true when both the condition are true
OR will give you true when at least one condition is true

Assignment Operator :- This operator is used to assign value to a variable..

Example a = 10

(Compare Equal Operator (= =) with assignment Operator (=))
= = operator gives to answer either true of false but assignment operator always
assign new value at left side to value at right side.

Type conversion :-
The Process of converting one predefined type into another is called Type Conversion
It comes in two forms
1. Implicit type conversion:- This type of conversion is a conversion performed by the compiler without Programmer's Intervention.

2. Explicit Type conversion :- It is user defined conversion that forces an expression to be of specific type.

Scope of a Variable:
• The part of program where a variable is usable is called scope of a variable.
Block:
• A group of statement enclosed in pair of parenthesis {} is called block or a
compound
statement.
If Statement: If statement helps to execute a block of statement based on the result of a condition. If the condition set evaluates to true on block of statement is executed otherwise another block is executed.
Syntax:
if (condition)
{
Statement1;
Statement2; ..
}
else
{
Statement1;
Statement2;
}

'else' part of 'if statement' is optional, if the user doesn't provide an else part and the condition evaluates to false, then nothing would happen. Complier will not produce an error in this case.

Switch Statement: A Switch statement is used execute a statement from a group of statement based on the result of a expression. The expression must be wither integer or character.
Syntax:
Switch(Expression)
{
       case 1:
           statement(s);
           break;
       case 2:
           statement(s);
           break;
       default:
           statement(s);
}

The default statement is executed when none of the above mention case matches with the result of the switch expression. Default is optional.
In absence of break next case below the matching case will also execute. This is called fall through **Loop/Iteration:** loop or iterations helps to repeat a group of statements number of times under a condition. Java supports three kinds of loop: while loop, for loop, do while loop
Entry control loop
    • An entry control loop first test the condition and then executes the loop body. If the condition is found true the loop body is execute other wise the loop terminates. In case if the condition is false in first time only then the loop will not get execute even once.
While loop: It is an entry control loop
while (condition)
{
    statement(s);
    increment;
}

Exit control loop
    • An exit control loop first executes the loop body and then test the terminating condition. If the
condition is found true the loop body executed again other wise the loop terminates. In case if
the condition is false in first time only then the loop will still get execute at-least once.

Do… While loop: It is an exit control loop
do
{
    statement(s);
    increment;
} *while (condition) ;*

for loop: It is a compact entry control loop, which all the tree parts of the loop (i.e.

initialization,

      condition, and increment of the counter variable) exists in a single line.

Syntax:

for(initialization ; condition ; increment)

{

         Statement(s);

}

It is to be noted that all the parts of the loop in the above statement are optional. In case if a

programmer wants to specify more than one initialization or increment/decrement then it has to be separated by (,).

Break Statement:

   • break is used to terminate the current switch statement or the loop. When break is encounter control transfer outside the body of switch/loop

Continue Statement:

   • Continue statement skips the remaining part of the current loop and begins the next iteration of

     the loop. It means when continue is encounter then control transfer to next iteration without going to remaining statement.

Commonly available Swing Controls in Java:

jFrame: jLabel:

jTextField:

jRadioButton:

jCheckBox:

jPasswordField:

jTextArea:

jbutton:

jList:

jComboBox:

A Frame is a container control, in which all the controls can be place.

JLable allows placing un-editable text on the Frame/Panel

JTextField allows the user to enter a single line of text

 Some Important Method are

    (1) setText( ) =   Set the text displayed by the text field. Ex

       nameTF.setText("hello");

(2) getText( ) = Returns the text displayed by the text field. Examples
   String Name = nameTF.getText( )   or
   int age = Integer.parseInt(jTextField1.getText( ));

(3) setEditable (True/false) = Set whether the user can edit the text field or not.

(4) isEditable ( ) = it will return true/false. If return true user can edit the text other wise not.

Event used is :- ActionPerformed( )

jPasswordField Allow us to enter a text during the run time but shows an encrypted text instead of the original text

The character displayed in place of text is known as echo character. You can change the default echo character using ecoChar property

Some Important Method are

setEchoChar ('*') =It will set Asterisk(*) as default echo character

get EchoChar( ) = It will gives you character set by you as echo character

getPassword ( ) = Gives you entire text given by you as password.

Practical Example

String name = new String (nameTF.getPassword( )) ;

if(name.equals ("shyam")

   System.out.println(" welcome ");

else

   System.out.println(" by ");

Event used is :- ActionPerformed( )

JTextArea is a multi-line text component to display or allow user enter or edit text.
 By default a textArea does not wrap a line of text.

Some common property

enabled - If set to true , the text field is enabled other wise disabled.

editable -   If set to true , the text field is editable other wise uneditable.

Some common Methods

setText( ) , getText( ) , setEditable ( ) , isEditable( ) – same as above

append( ) – Add the specified text to the end of text Area.

jTextArea1.setText ("KV");

jTextArea1.Append ("Kapurthala ");   Now final text will be KV Kapurthala

Event used is :- ActionPerformed( )

jCheckBox – It allows us to indicate whether a particular condition is on/off. Check box work independently   so they Allow us to choose one or more checkbox from a group of jCheckBox given. .

jRadioButton – It allow us to choose a single item from a group of jRadioButton

options. Selecting One radio button immediately clear all the other radio button in the group. Reason for this behavior is being that they must be a part of common button group.

Some commonly used method.

    (1) getText( ) , setText ( )- same as above

    (2) isEnabled ( ) – It will determine whether a check box/ radio button is enabled.
       if(StreamRB.isEnabled ( ))

    (3) isSelected ( ) – It will determine whether a check box/ radio button is selected or not
       if(StreamRB.isSelected( ))
                 // write code here
       else if (condition 2)
                 // write code here

    (4) isVisible ( ) – It will determine whether a check box/ radio button is visible or not
       if(StreamRB.isVisible ( ))
                 // write code here

    (5) setEnabled(True/ False)- Make the check box/ radio button enabled if true value is passed and disabled if false value is passed

    (6) setVisible (True/ False)- Make the check box/ radio button visible if true value is passed and invisible (hidden) if false value is passed

      Event used is :- ItemStateChanged ( )

jList :- is a group of values or items from which one or more selections can be made. In this we can view large list by using scroll bars.

For this selection mode property is used with given option (SINGLE, SINGLE_INTERVAL, MULTIPLE_INTERVAL)

Some common property

    (1) Modal- This property is used to enter New Items in the List control.

    (2) selectionMode ( )- It is used to select the Mode of Selection- It has three modes
       SINGLE:- for single item to be selected
       SINGLE_INTERVAL- Single Range of item to be selected like (2nd to 10th)
       MULTIPLE_INTERVAL-Multiple ranges can be selected like (2nd to 10th , 15th to 25th etc)

    (3) selectedIndex ( ) – Return the index of selected Item (index starts from 0)

    (4) selectedIndices ( ) – Return the indices of selected Items when multiple has selected
      (index starts from 0)

Some common Methods

    (1) getSelectedIndex( )- return the index of selected item when one item is selected . But when multiple items are selected then it returns the smallest selected Index

    (2) getSelectedvalue( )- return the value of selected item when one item is selected . But when multiple items are selected then it returns the first item selected ()

similar properties are getSelectedindecies( ) ,and getselectedvalues( ) used for more than one item selected

(3) isSelectedIndex(int Index) – Check the particular index whether it is selected or not.

if (jList1. isSelectedIndex(2))   // gives true when item 3 (having index 2) is selected**.**

Example

String modeof payment = **(String) List1.getSelectedValue( ) ;**

If(ModeofPaymnt.equals ("cheque "))

    // write code here

ComboBox:-

jComboBox is similar to jList : It is a combination of jTextField and jList. By default text filed of combobox is uneditable but you can make it editable by setting its editable property to true.

Some common property

(1) Modal- This property is used to enter New Items in the List control.

(2) selectedIndex ( ) – Return the index of selected Item (index starts from 0)

(3) selectedItem( ) – Return the name of selected Item

Some common Methods

(1) getSelectedIndex( )- return the index of selected item when one item is selected . But when multiple items are selected then it returns the smallest selected Index

(2) **getSelectedItem( )- return the value of selected item when one item is selected . But when multiple items are selected then it returns the first item selected ()**

(3) getItemAt(int Index) – Return the item at given index .

    String name= j combo1. getItemAt(2);

    Some more methods are

    addItem(Item name)   ;   getItemCount( ),

        insertItemAt(Item name, index) ,

    isEditable( ) ,   removeItem(item name) ,

        removeItemAt(index),

    Example for Practical

    String Stream = **(String) List1.getSelectedItem( ) ;**

    If(Stream.equals ("Commerce"))

    // write code here

Question Answer

Q.1 Name any two Object Oriented Programming languages?

C++ and Java

Q.2. Why is java called a platform independent language?

Java program can be easily moved from one computer system to another, anywhere anytime. Hence it is called a platform independent language. Elaborate the java

Compilation process.

The source program is first converted into a **byte code** using a java compiler. This byte code is machine independent i.e. same for all the machines. Later the byte code is executed on the machine using an interpreter.

Q 3. What is the difference between = and == operator in java?

Ans. Represent an assignment operator. It sets the value of the variable on its left side with the

result of expression on its right side. == represent a conditional equal to operator. It checks for

the equality of both its operands. If both the operands are equal, condition evaluates to true

otherwise to false.

Q4. Name the two type of selection statement available in Java.

Ans. Two selection statement available in java are 'if' and 'Switch'

Q.5. What is an event? What is event handler?

Ans: An event is occurrence of some activities either initiated by user or by the system. In

order to

react, you need to implement some Event handling system in your Application. Three things are

important in Even Handling-

Event Source: It is the GUI component that generates the event, e.g. Button.

Event Handler or Event Listener: It is implemented as in the form of code. It receives and handles events through Listener Interface.

Event Object or Message: It is created when event occurs. It contains all the information about the event which includes Source of event and type of event etc.

Q.6. Which property would you set the setting the password character as '$'?

Ans:echoChar

Q.7. Which method returns the password entered in a password field? Ans: char []

getPassword().

Q.8. What is the significance of a button group? How do you create a button group?

Ans: We must add a **ButtonGroup control** to the frame to group the check boxes by

using Button

Group property of the check box. By dragging buttongroup control from palette window

9. Which list property do you set for specifying the items for the list.

Ans: model

10. Which method would you use to determine the index of selected item in a list? Ans: int

getSelectedIndex().

11. Which method would you use to insert an item at specified index, in the list?

Ans: void setSelectedIndex(int index).

12. How you can determine whether 5th item in a list is selected or not? Ans:

isSelectedIndex(4).

13. Which method you would use to insert 'Hello' at 10th position in the Text Area control.

Ans

:void insert("Hello", 9).

14. Which method you would like to use to insert an Icon (picture) on a Push Button. Ans:

void setIcon(Icon).

15. Which property would you like to set to make a Combo box editable? Ans: editable.

16. What is Layout Manager? Name the layout managers offered by NetBeans?

Ans: Layout managers enable you to control the way in which visual components are

arranged in GUI forms by determining the size and position of components within

containers.
There are seven types of layout are available-
• Flow Layout
• Grid Layout • Card Layout
• Spring Layout • Border Layout
• GridBag Layout
• Box Layout

17. What is dispose() used for ?

Ans: dispose() is used for hide and dispose of the frame when the user closes it. This

removes the frame from the screen and frees up any resources used by it.

18. What is the difference between-

(a) Text field & Text area

(b) Text field & password field (c) Radio Button & Check Box

Ans: (a) A text field's text property can hold single line of text unless it is an HTML text.

While a text area's text can hold any number of lines of text depending upon its rows

property.

(b) Though a text field and a password field can obtain a single line of text from the user,

yet these are different.

A password field displays the obtained text in encrypted form on screen while text field

displays the obtained text in unencrypted form.

(c) **Radio Button**:. It is used to get choices from the user. It is grouped control, so that

only one can be selected at a time among them. Radio Button works in group, so that they

must be kept in a ButtonGroup container control like so that only one can be selected at the

same time.
Check box. It indicates whether a particular condition is on or off. You can use Check
boxes to give users true/false or yes/no options. Check Boxes may works independently to
each other, so that any number of check boxes can be selected at the same time.
Some features of jCheckBox control are-

19. What is the significance of following properties of a text area ?
(a) lineWrap (b) wrapStyleword

Ans: (a) Defines Wrapping featureenable/disable (b) Determines where line wrapping

occurs. If true,
the component attempts to wrap only at word boundaries. This property is ignored unless
linewrap is set to true.

20. What do you understand by focus?
Ans: A Focus is the ability to receive user input/response through Mouse or Keyboard.
When object or control has focus, it can receive input from user.
An object or control can receive focus only if its enabled and visible property are set to
true.
Most of the controls provides FOCUS_GAINED() and FOCUS_LOST() method in
FocusEvent by
the FocusListener. FOCUS_LOST() is generally used for validation of data.

21. What is meant by scope of a variable?

Ans: In Java, a variable can be declared any where in the program but before using them.

The area of program within which a variable is accessible, known as its scope.
A variable can be accessed within the block where it is declared.

Local Scope   & Global Scope
int x= 50 ;   // global scope
void main ( )
{
        int y = 100 // local scope
}

Q.22. How to stop application
        System.exit(0);
Q.23. How to Make Text Field un editable
 NameTF.setEditable(false);

 Q.24. How to make submit button disabled
 submitBTN.setEnabled(false)

CHAPTER-5
JAVA GUI PROGRAMMING REVISION TOUR - III [Methods etc.]

What do you understand by Class and Object?
Ans: Class is group of similar object that have common properties(data) and behavior
(method) . It described as a blue print of Objects.   For example let furniture is a class

 Object: Object is a identifiable entity with some properties and behavior. It Must belongs
to a class.
In other words, Object is an instance/variable of a class.

 **Define a method. What is method prototype and signature?   // Important -2 marks
question for creating method in same pattern**

Ans: Behaviour of an object is described through associated functions called methods.

Example

int sum (int a,int b)

{

      int c=a+b;

      return c;

}

Type of members (data) of class

Ans: **Instance(object) Variable-** These data member are created for every object of the class i.e. replicated with objects.

Class variable - These data members that is declared once for each class and all objects share these members. Only a single copy is maintained in the memory. These are declared with static keyword.

Access specifiers:

 It describe the visibility of members of class.

    (i) Private :- Private members of class are not accessible outside the class , they are accessible only inside the class.

    (ii) Protected : Protected members are accessible inside the class as well as in child (derived) class.

    (iii) Public : Public members are accessible inside the class, inside the child class as well as outside the class.

    (iv) Default access: If no access specifier is mentioned then friendly access is used It means the members of classes is accessible in the same package . They are not accessible outside the package.

Polymorphism : Polymorphism is the ability for a function or data to be processed in more then one form . Polymorphism is implemented with the help of function overloading.

In function overloading, there are more than one function in a program with the same name but having different argument

Example of Function Overloading

        Int area(int x,int y); // Area of Rectangle

        Int area(int side); // Area of square

Define Constructor :- It is a special member function of class which has same name as class name.

How is a constructor invoked?

Ans: A constructor is automatically called when we create a new object.

18. What's wrong with the following constructor definition for the class PlayInfo?

public void PlayInfo(int sticks)

{

        nsticks = sticks;

}

A constructor cannot have a return type, not even void.. so remove the word void

. What is the difference between instance and static variable?

Ans: **Instance Variable-** These data member are created for every object of the class i.e. replicated with objects.

Class variable (static)- These data members that is declared once for each class and all objects share these members. Only a single copy is maintained in the memory. These are declared with static keyword.

Q. What is "this" keyword?

The keyword 'this' refers to currently calling object. Instead of using object name, you may use 'this' keyword to refer current object.

Ex. **this.method2()**

CHAPTER-6
MORE ABOUT CLASSES AND LIBRARIES

Brief Summary of the Chapter:

What do you understand by Library in Java?

Ans: A library is readymade and reusable component/codes that can be used in a program to perform predefined task.

Some commonly used Java libraries are Math Library, String Library, Utility Library and IO Library etc.

You can use import statement at the top of the program to include the Java libraries. import java.io.*;

The java.lang is the default imported library in your program without writing import statement.

String Library & its commonly used methods

1 .boolen equals(str) - Compare this (current) string to given string and returns true if both are

true otherwise false. e.g. boolean test=str1.equals(str2);

2. int compareTo(str1,str2) - Compare two strings in alphabetical order.

boolean equalsIgnoreCase(str) - Compare this string to given string but ignores case difference. 3. int length() -Returns the length of this string.

e.g. int x=str1.length();

Math Library & its commonly used methods

Java provides math library, which available under java.lang package.

In order to use functions/methods of math library, you need to invoke function using math

keywords before the function.

e.g. x=math.abs(-7.5);

1. **pow(num1,num2)** - It computes num1 num2 , where num1 and num2 are numbers.

e.g. syste.out.print(""+math.pow(2,3);

2. **round(num1)** - It rounds off a given number to its nearest integer. It can take float/double as argument. e.g.

system.out.print(""+math.round(1.5)); 2

system.out.print(""+math.round(-1.5)); -1

Using Dates & Times in JAVA

Java offers two classes in java.util package to manipulate date and time.

1. java.util.Date 2. java.util.Calendar

In order to use Date & calendar, you need to import java.util

package. E.g. import java.util.*;

Date d=new Date(); -It returns system date in the given format.

Chapter-7

Inheritance: It is the capability of one class to inherit the data member and member functions from another class.

Type of Inheritance: (Diagram Available in Book)
- (i) Single Inheritance   (ii) Multiple Inheritance
- (ii) Hierarchical Inheritance   (iv) Multilevel

Base class:- A class from which another class is inherited. (also called Super class)
Derived Class: A class which inherit properties from another class. (also called Sub class)

Advantage of Inheritance:-
- (i) Reusability   (ii) Transitive nature   (iii) extendibility

Abstract class is the one that created only for the purpose of base class so that it can be inherited by derived classes. No object of abstract class is created. It is created by the keyword ABSTRACT
Public abstract class shape
{

};
Method Overriding: If Base class has a method with same signature as in sub class the method
of subclass overshadows the method of base class , it is called Method overriding.

Method Overloading: Two methods with same name but different signatures are there in the same scope of program.

. What is the primary purpose of inheritance ?
     Ans: The primary purpose of inheritance is code reusability.

     What types of inheritance does Java have?
Ans: Java supports only these inheritance types:
         i. Single inheritance ii. Multilevel inheritance   iii. Hierarchical

CHAPTER 8
JAVA DATABASE CONNECTIVITY TO MYSQL

JDBC: stand for java database connectivity.
In JDBC four main classes are used.
 (i) DriverManager Class   (ii) Connection Class
(iii) Statement class   (iv) Resultant class

Steps for creating Databse Connectivity Applications

(i) Import the Package for JDBC

To import the package various classes from java.sql is imported

Import java.sql.connection   **import java.sql. DriverManager ;**
Import java.sql. Statement   **Import java.sql. ResultSet**

Or you can write
Import java.sql. * ;

(ii) Register the JDBC driver

To register the driver forName method is used
Class.forName ('java.sql.Driver ");

(iii) Open a connection

DriverManager.getConnection("jdbc:mysql://localhost:3306/test
","root","root");

(iv) Execute a Query

Statement stmt=con.createStatement() ;
String SQL= "select * from EMPL";
Resultset rs= stmt.execute(Query);

(v) Extract data from Result Set

int RollNo = rs. getINT("rollno") ;
string Name = rs.getString("name");
float fees= rs.getFloat("fees");

Various Methods of Moving Result Set

(i) Next ()   -   Moves the cursor forward one row
(ii) First ()   -   Moves the cursor first row of result set.
(iii) Last ()   Moves the cursor to last row of result set object.
(iv) Reative(int rows)   -   Moves the cursor relative to the current position.
(v) Absolute(int rows) -   Moves the cursor on given row irrespective to current position
(vi) getRow()   -   Retrieve the current row number where the cursor is pointing

Connection:

A connection is the session between the application program and the database. To do anything with database, one must have a connection object.

ResultSet Methods

A result set (represented by a ResultSet object) refers to a logical set records that are fetched from the
database by executing a query and made available to the application -program. There are various
resultSet methods such as:-

•   next( )   :moves the cursor forward on row.

•   first( )   :moves the cursor to the first row in the ResultSet
Object.

•   Last( )   :moves the cursor to the last row in the ResultSet object.

- relative(in rows)   :moves the cursor relative to its current position.

- Absolute(int rno)   :positions the cursor on the rno-th row of the ResultSet object.

- getRow( )   :Retrieves the current row number the cursor is pointing at.

That is if cursor is at first row the getRow( ) will return 1.

SOLVED QUESTIONS:

1. What is the importance of java.sql.*; in java jdbc connection ?

Ans: The java.sql.package has to be imported first before we can create a java jdbc connection to the database.

2. What is DriverManager ?

Ans: DriverManager a class of java.sql package that controls a set of JDBC drivers. Each

driver has to be registere with this class.

3. What is the purpose of connection.close() method?

Ans: This method is used for disconnecting the connection. It frees all the resources

occupied by the database.

4. What is ResultSet ?

Ans:A result set (represented by a ResultSet object) refers to a logical set of records that

are fetched from the database by executing a query and made available to the application program.

5. What type of parameter that used in executeQuery( ) method?

Ans: The executeQuery( ) method has a single String parameter. This parameter must be

valid SQL command.

6. What is Connection? What is its role?

Ans: A Connection (represented through Connection object) is the session between the

application program and the database. To do anything with database, one must have a connection object.

7. What all JDBC classes/objects are used in a database connectivity application?

Ans: a) DriverManager Class   b) Connection Object

c)Statement Object

d) ResultSet Object

8. What is JDBC? What is its basic functionality?

Ans: The JDBC(Java Database Connectivity) API defines interfaces and classes for

writing database applications in Java by making database connections.

9. Name the methods which are useful for executing SQL statements.

Ans: There are two methods which are responsible for executing SQL statements. These

are:

• executeQuery( )- For SQL statements that produce a single result set

(like simple
    SQL query).
            • executeUpdate( )- For executing INSERT,UPDATE OR DELETE
statements and
             also SQL DDL(Data Definition Language) statements.

Difference between executeQuery() and executeUpdate()
executeQuery() is used when query return the records set after execution. This query is executed using select command.
executeUodate () is used when query executed and modification in data base done. . This query is executed using delete, update, Insert query

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CHAPTER 09

WEB APPLICATION DEVELOPMENT

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What is Web Browser: A web browser is a client that initiates communication by making a request
for a specific resource. The server then responds with the content of that resource, or an error message if unable to do provide the contents due to any reason.

Example : Opera , Mozilla firefox , google crome ,
Client Server Computing: A web server is a program that runs on a computer connected to Internet. The web server watches the Internet connection and waits for requests from the web browser When it receive the request it finds the documents and send it back to the browser that request it.

Example : Apache Web server , Microsoft Internet information server , Tomcat sever

Dynamic Web Page: A dynamic document is created by web server whenever a browser requests the documents.
Static Web Page: A static document is a fixed content document that is created by web server whenever a browser requests the documents.

 What is Uniform Resource Locator?
Ans: The uniform resource locator (URL) is the unique identifier of a web page. The address
or URL of the current page you are on appears in the "Address Bar" of the web browser. You
can go directly to a web page if you know its URL by simply typing the URL in the address
bar..The most general form of a URL syntax is as follows:

Protocol://domain name/<directory path>
For example:
http://www.cbse.nic.in/result.html

Client server communication

It refer to the network setup in which client programs reside on the server and clients connect to the server for network access.

HTTP:- Hypertext Transfer Protocol (It is used for transferring web pages)

FTP-(File Transfer Protocol)   It is used for transferring file from one machine to another

SMTP(Simple mail transfer protocol) – used for sending email

Telnet Protocol – Used to open remote machine access (telnet) session.

CHAPTER 13   MYSQL REVISION TOUR

KEY POINTS OF THE CHAPTER

Structure Query Language

It is freely available open source relational database management system that uses structured query language. It provides a set of command to support secure environment for storing database.

DDL: Data Definition Language

DDL command allow you to perform various task related to data definition   e.g.

    (1) Creating Table , Alter Table, drop table
    (2) Granting and revoking privileges. (GRANT AND REVOKE COMMAND)

DML: Data Manipulation Language.

SQL commands that provide commands for Manipulation of data

e.g. Inset Command, Select command, update command , delete command

TCL - Transaction Control Language

TCL Commands that allow us to manage and control the transactions. Commit and Rollback

Meta Data

Facts/data about the data stored in table.

Data Dictionary

A file containing facts/data about the data stored in table

Relational Data Model

In this model data is organized into tables i.e. rows and columns. These tables are called relations.

The Network Data Model

In this model data are represented by collection of records & relationships among data. The collections of records are connected to one another by means of links.

The Hierarchical Data Model

In this model records are organized as trees rather than arbitrary graphs.

Object Oriented Data Model

Data and associated operations are represented by objects. An object is an identifiable entity with some characteristics and behavior.

Relation:

Table in Database

Domain:

Pool of values from which the actual values appearing

Tuple:

A row of a relation

Attribute:

A column of relation

Degree:

Number of attributes

Cardinality:

Number of tuples

View:

Virtual table that does not really exist in its own right

Primary Key:

Set of one or more columns that can uniquely identify tuples with in the relation. It can not be null.

Candidate Key:

A Candidate Key is the one that is capable of becoming Primary key i.e., a column that has unique value for each row in the relation.

Alternate Key:

A candidate key that is not primary key is called alternate key.

Foreign Key:

A non-key attribute, Which is primary key in another table.

The values of foreign key are derived from the primary key of base table.

Integrity Constraints

Ans-This is a rule which ensures that in DBMS relationships between records in related tables are valid. And that user don't accidently delete or change related data. Integrity Constraints are the rules that a database must comply all the times.

Accessing Database in MySql :

Through USE keyword we can start any database
Syntax:

CREATE DATABASE STUDENT;
(CREATE A NEW DATABSE)

SHOW DATABASES;
(LIST OF EXISTING DATABSES)

USE <database Name>;
Example: USE STUDENT;

SHOW TABLES (IT WILL SHOW LIST OF EXISTING TABLES)

Viewing structure of table:
DESCRIBE/DESC <tablename>;
DESCRIBE student;

CREATING TABLE IN MYSQL

Through Create table command we can define any table.
CREATE TABLE <tablename>
(<columnname> <datatype>[(<Size>)],……..);
CREATE TABLE STUDENT (ROLLNO INTEGER PRIMARY KEY, NAME CHAR(20), FEES FLOAT(10,2));

INSERTING DATA INTO TABLE

The rows are added to relations using INSERT command.
INSERT INTO <tablename>[<columnname>]
VALUES (<value>, <value>…);
INSERT INTO student **(ROLLNO, Name, Fees)**
VALUES (100, 'AMIT' , 3000.00);

SELECT COMMAND:

SELECT * FROM STUDENT;

It lets us make queries on the database.
SELECT * FROM tablename WHERE condition;
SELECT * FROM student WHERE Sid=100;

Eliminating Redundant Data
DISTINCT keyword eliminates redundant data
SELECT DISTINCT CITY FROM Student;

Selecting from all the rows-ALL Keyword (It will retain duplicate values)
SELECT ALL CITY FROM Student;

Using column aliases:
SELECT <column name> AS [columnalias][,…]
FROM <tablename>;
SELECT rollno, name AS "studentname"
FROM student;

Condition based on a range: (Both Inclusive)
Keyword BETWEEN used for making range checks in queries.
SELECT rollno, name FROM student WHERE rollno BETWEEN 10 AND 20;
Condition based on a list:
Keyword IN used for selecting values from a list of values.
SELECT rollno, name FROM student WHERE rollno IN (10, 20, 60);

SELECT rollno, name FROM student WHERE City IN ('Kapurthala','jalandhar', 'amritsar');

Condition based on a pattern matches:
Keyword LIKE used for making character comparison using strings
It uses two wild cards

percent(%) matches any substring
underscore(_) matches one character only

SELECT * FROM student WHERE name LIKE 'a%';

SELECT * FROM student WHERE name LIKE '_ _ a % ';
SELECT * FROM STUDENT WHERE NAME LIKE '%SINGH%' ;
SELECT * FROM STUDENT WHERE NAME LIKE '%SINGH' ;

ORDER BY clause: (ASC/DESC)
It is used to sort the results of a query.
SELECT <column name> [, <column name>, …]
FROM <table name>
[WHERE <condition>]
[ORDER BY <column name>];

SELECT *
FROM student ORDER BY name;
 (default sorting is Ascending)
SELECT *
FROM student ORDER BY name DESC;

Inserting data into table:
INSERT INTO command is used to insert data into table
INSERT INTO tablename VALUES (value1,….);

INSERT INTO student VALUES (1,'Ram', 12);

Modifying data in tables:
Existing data in tables can be changed with UPDATE command.

UPDATE student SET Sclass=11 WHERE Sname='Ram';

UPDATE STUDENT SET FEES=FEES+500 WHERE FEES>=2000;

UPDATE STUDENT SET FEES=FEES+FEES*0.10 ;

Deleting data from tables:
Tuples in a table can be deleted using DELETE command.
 DELETE FROM STUDENT ;
It will delete entire record . To delete selected record where clause is used.

DELETE FROM STUDENT WHERE NAME='AMIT' ;

Q.1. Comments in My sql :Comment are the Lines ignored by complior , they are used for better readability .
Commit are of two type
Single Line / /
Multline /*
        */
Q.2. Write Name of relational operator

Ans:-					
	>	G.T ,		<	less than
	> =	G.E.		< =	L.E
	=	E.T.		< >	N.E.

Q.3. Eplain update command
 update student set fees=fees+500 ; // all fees updates
update student set fees=fees+500 where rollno=101;
update student set fees=fees+fees*0.10 - to increase fee by 10 %

1. What is NOT NULL constraint?

   Ans- NOT NULL constraints impose a condition that value of a row cannot be left blank.

2. What is error in following statement?

UPDATE EMPL;

Ans- WHERE clause is missing in given query.

3. Identify the error?

DELETEALLFROMTABLEEMP;

Ans-There is no need to write ALL and TABLE word in above query.

Correct form is-DELETE FROM EMP;

4. Differeniate WHERE and HAVING clause?

Ans-:- Where clause is used to select particular rows that satisfy condition whereas having clause is used in

connection with aggregate function, group by clause.

20. What is difference between char and varchar?

Ans-The difference between char and varchar is that of fixed length and variable length.The CHAR datatypes

specifies a fixed length character string.When a column is given datatype as CHAR(n) then MySQL reserved

all the n spaces for storage. If value is shorter than length n then blanks are added automatically.

But on other hand when a column is given datatype as VARCHAR(n) , then it uses the column required to store

that value. Here less columns are used **. no banks are added in last.**

(i) To display the details of those Customers whose city is Delhi

.**Ans:** Select all from Customer Where City="Delhi"

(ii)To display the details of Item whose Price is in the range of 35000 to 55000 (Both values included).

Ans: Select all from Item Where Price>=35000 and Price <=55000

(iii)To display the Customer Name, City from table Customer, and Item Name and Price from table Item, with their correspondingmatching I_ID.

Ans: Select Customer Name, City, ItemName, Price from Item, Customer where Item.I_ID=Customer.I_ID.

(iv) To increase the Price of all Items by 1000 in the table Item.

Ans: Update Item set Price=Price+1000

Define alter table command.

Alter table command is used to add a new column / constraints , drop column/ constraints .

And to change column name , change columns. Data type or size.

can be used:

Uses of alter table command:-

To add new column :-	Alter table EMPL **ADD** (email char(20) NOT NULL) ;
To Change Data type and Size:	Alter table EMPL **MODIFY** (email char(30)) ;
To Change column Name	Alter Table EMPL **CHANGE** email e_mail char(30);
To add Primary Key	Alter Table EMPL **ADD** Primary Key(EMPNO);
Adding constraint and Naming Them :	Alter Table EMPL **ADD constraints nn_grade** (Grade NOT Null)
	Alter Table EMPL **ADD constraints p_key** Primary Key(EMPNO);
To delete a column	Alter Table EMPL **DROP** Column email ;
To delete a primary key	Alter table EMPL **DROP** Primary Key or drop P_key

Q. Show Add, Modify, and Remove constraints for altering a table.

If we create a table without specifying any primary key, we can still specify its primary key by

ALTER TABLE command.

ALTER TABLE Shoe ADD PRIMARY KEY(code);

TO DELETE PRIMARY KEY CONSTRAINTS

ALTER TABLE Shoes DROP PRIMARY KEY;

After this statement, there is no primary key of Shoe table. Now we can add the new primary key as

Follows :

ALTER TABLE Shoe ADD PRIMARY KEY (Name, Size);

  ALTER TABLE bills MODIFY bill_date DATE NOT NULL;

     Later on if we wish to change this status again, we can do so by entering the command:

      ALTER TABLE bills MODIFY bill_date DATE NULL;

Remove and Modify columns :

ALTER TABLE can be used to remove a column from a table. This is done using DROP clause in

ALTER TABLE Shoes DROP Qty;

ALTER TABLE can also be used to change the data type of a table column. For this the syntax is as

follows: ALTER TABLE shoes modify code CHAR(5)

changes the data type of column Code to CHAR(5)

MySQL functions:

A function is a special type of predefined command set that performs some operation and returns a single value.

String functions :(Lower / LCASE( ), Upper/UCASE( ), Concate( ), Instr( ), Length( ),

RTrim( ), LTrim( ), Substr( ))

Numeric function :(Round( ), Truncate( ), Mod( ), Sign( ))

3.Date functions:(Curdate( ), Date( ), Month( ), year( ), DayName( ), DayofMonth( ),

DayofWeek( ), DayofYear( ), Now( ), SysDate( ))

CHAPTER -14

DATABASE TRANSACTIONS

TRANSACTION--A transaction is a logical unit of a work that must succeed or fail in its entirely. It is an atomic operation which can be divided unto smaller operations.

COMMIT-This statement is used to end a transaction and make all changes permanent. Until a transaction is committed, other users cannot see the changes made to the database.

ROLLBACK- The ROLLBACK statement is used to end a transaction and undo the work done by that transaction. After ROLLBACK, it looks like that transaction had never begun.

SAVEPOINT-It is point in a transaction, up till which all changes have been saved permanently.

ACID- It is an acronym of ATOMOCITY, CONSISTENCY, ISOLATION, DURABILITY

Transaction Properties.:- (ACID Properties)

1. Atomicity (All or None concept) : This property ensure that either all operations are committed or none will be committed.
2. Consistency:- This property states that if database is consistent before execution of transactions then it must be consistent after execution of transactions
3. Isolation:- This property states that each transaction is unaware of other transaction executing concurrently.
4. Durability:- This property of a transaction ensure that after successful completion of transaction the changes remains permanent even if there is system failure.

Transaction control command:-

BEGIN   [work] / START TRANSACTION : it makes the beginning of transaction

COMMIT [work] : End the current transaction by saving the database changes and starts a new transaction.

ROLLBACK [work] : End the current transaction by discarding the database changes and starts a new transaction.

Save Point : defines breakpoints for the transaction to allow partial rollback.

Example

BEGIN:

Update ………..

Delete ……….

Savepoint first;

Insert into ……………

ROLLBACK TO SAVEPOINT first;

Commit ;

Set Autocommit : Enable of disable the default auto commit mode.

SQL Constraint:

A Constraint is a condition or check applicable on a field or set of fields.

Unique Constraints : This states that no two rows have same value in the specific column.

Primary Key : This declare a column as primary key. The primary key column must be unique (no duplicate value is allowed) and it can not be NULL in any case.

Default Constraints : using this a default value is specified for a column. When user does not enter a value then automatically default value is supplied.

Check Constraints : This constraints used to define a check condition on a column of table. Data base must test the values when new records are entered in database.

Example

Create Table EMPL(ENO int(5) Primary Key, Name Char(20) NOT NULL, fees float(10,2) check fees>2000, city char(20) default 'Delhi');

Foreign Key: This declare a column that is related to Primary Key in another table. Using this referential Integrity is enforced. It is a system of rules that test the validity of record in these related table.

Create Table Department (DEPTNO int(5) primary key , Dname char(20), ENO int(5) references EMPL(ENO))

Referencing Action :

Create Table Department (DEPTNO int(5) primary key , Dname char(20), ENO int(5) references EMPL(ENO) on delete /on update   referencing action).

 There are four type of action

1. Cascade: This action state that if you delete or update primary key in parent table then matching rows in child table is automatically deleted or updates

2. Set NULL : This action state that if you delete or update primary key in parent table then matching rows in child table is set to NULL
3. NO Action : This action state that if you try delete or update primary key in parent table then it is not allowed if there is a related foreign key.
4. Restrict : This action state that if you try delete or update primary key in parent table then it is rejected if there is a related foreign key.(same as No action)

CHAPTER 15
More on SQL- Grouping Records and Table Joins

GROUP BY: GROUP BY clause is used in a SELECT statement in conjunction with

aggregate functions to group the result based on distinct values in a column.

HAVING: HAVING clause is used in conjuction with GROUP BY clause in a SELECT statement to put condition on groups.

 Select class, sum(fees) from student group by class ;

Select class, sum(fees) from student group by class having count(*) > 4 ;

WHERE Vs HAVING: WHERE is used to put a condition on individual row of a table whereas HAVING is used to put condition on individual group formed by GROUP BY clause in a SELECT statement.

JOINS / CARTESIAN PRODUCT/ CROSS JOIN :-

A Join Is A Query That Combines Rows From Two Or More Tables.

For example

Select * from EMPL, DEPT ;

It is also known as Cartesian Product. It combine every row of first table with every row of second tables.

Degree(column) of resultant table :   sum of columns of both tables (3+4=7)

Cardinality (rows) of resultant table :   product of rows of both tables (2*3=6)

EMPNO	ENAME	DNO
1	Raman	101
2.	Sumit	102

DEPT

DNO	DNAME	LOC	SAL
101	COMPUTER	DELHI	5000
102	SALES	MUMBAI	6000
103.	ACCOUNT	PUNJAB	7000

EMPNO	ENAME	DNO	DNO	DNAME	LOC	SAL
1	Raman	101	101	COMPUTER	DELHI	5000
1	Raman	101	102	SALES	MUMBAI	6000
1	Raman	101	103.	ACCOUNT	PUNJAB	7000
2.	Sumit	102	101	COMPUTER	DELHI	5000
2.	Sumit	102	102	SALES	MUMBAI	6000
2.	Sumit	102	103.	ACCOUNT	PUNJAB	7000

• **Equi-Join:** An equi join of two tables is obtained by putting an equality condition on the Cartesian product of two tables. This equality condition is put on the common column of the tables. This common column is, generally, primary key of one table and foreign key of the other.

SELECT * FROM EMPL, DEPT WHERE EMPL.DEPTNO = DEPT.DEPTNO;

EMPNO	ENAME	DNO	DNO	DNAME	LOC	SAL
1	Raman	101	101	COMPUTER	DELHI	5000
2.	Sumit	102	102	SALES	MUMBAI	6000

(It Is Join Condition That Show All The Columns Of Both Tables Including Common Column Two Times) – Example DNO. Here due to equality only matching record will be shown.

NATURAL JOIN
            (TO REMOVE DUPLICATE COLUMN)
It will also combine column from both the tables depending up matching of common column. It also remove the duplicate column from resultant table.
.
SELECT EMPL.* , DNAME, LOC,SAL FROM EMPL , DEPT WHERE EMPL.DEPTNO= DEPT.DEPT.NO ;

Here EMPL.* means all the columns are first table and DNAME, LOC, SAL from second table will be displayed.

USING TABLE ALIAS : It is a temporary label given along with table name in FROM clause.

SELECT * FROM EMPL E, DEPT D WHERE E.DEPTNO = D.DEPTNO;

ADDITIONAL SEARCH CONDITION IN JOINS : Once you have joined the table , you can filter information from joined table by incorporating additional search conditions.
Example
SELECT E.DEPTNO, DNAME, EMPNO, ENAME , JOB , SAL FROM EMPL E , DEPT D WHERE E.DEPTNO = D.DEPTNO AND DNAME = 'SALES' ORDER BY E.DEPTNO;

Non EQUI JOIN   The comparison operator (other than equal) is used in the join condition.
(comparision Operator are   > , <, >= , <= , < >)

USING TABLE ALIAS : It is a temporary label given along with table name in FROM clause.

SELECT * FROM EMPL E, DEPT D WHERE E.DEPTNO = D.DEPTNO;

(1) **JOINS USING SPECIAL SQL CLAUSES – JOIN / CROSS JOIN /CARTESIAN PRODUCT**
    [Definition given above with Output]
    SELECT * FROM EMPL JOIN DEPT; OR
    SELECT * FROM EMPL CROSS JOIN DEPT;
(2) **EQUI JOIN**
        [Definition given above with Output]
        SELECT * FROM EMPL JOIN DEPT ON EMPL.DNO = DEPT.DNO

(3) **NATURAL JOIN – IN NATURAL JOIN THE DUPLICATE COMMON COLUMN WILL BE REMOVED**
    SELECT * FROM EMPL NATURAL JOIN DEPT;
(4) **ADDITIONAL SEARCH CONDITION IN JOINS**
    SELECT * FROM EMPL NATURAL JOIN DEPT WHERE SAL>20000;
(5) **WE CAN ALSO USE USING CLAUSE IN PLACE OF ON CLAUSE**
    SELECT * FROM EMPL JOIN DEPT USING (DNO);

            It is same as SELECT * FROM EMPL JOIN DEPT ON EMPL.DNO = DEPT.DNO

(6) LEFT JOIN :- When you may find that all the rows first table will be returned whether is a match in found in second table or not.

SELECT DEPT.* , ENAME , MGR FROM DEPT LEFT JOIN EMPL ON DEPT.DEPTNO=EMPL.DEPTNO;

(7) RIGHT JOIN : When you may find that all the rows second table will be returned whether is a match in found in first table or not.

SELECT DEPT.* , ENAME , MGR FROM DEPT RIGHT JOIN EMPL ON DEPT.DNO=EMPL.DNO;

CHAPTER 18

IT- Applications

Q. Write Short Notes on :, e-Business, e-Learning. e-Governance

Answer : e-Governance involves applications which are used by government
Agencies/organizations to provide better governance.

e-Business applications use technology to effectively access and deliver business related services and perform various kinds of business transactions

MAJOR E-BUSINESS PORTAL

  (1) IRCTC Portal – It is the Indian Railway Catering and Tourism Corporation web site . This portal is launched to offer the online railway ticketing in India.
  www.irctc.co.in

  (2) Life Insurance Corporation of India-(LIC) It is one of the Premier insurance companies of India . It caters life insurance needs of the society that arises in changing environment.
  www.licIndia.com

  (3) E-Banking SBI- This portal provide various online banking   facility to customers.
  www.statebankofIndia.com

Positive Social Impact :-

  (1) Increase in Internet Users
  (2) Change in online shoping habits
  (3) Increase in non metro shopers

Negative Social Impact :-

  (1) Poor telecom and infrastructure for reliable connectivity
  (2) User don't trust on online shoping as product received are not of good quality
  (3) Gaps in current legal frame work.

e-Learning is a terms used for means of teaching using technology such as Network/Internet, CDROM, DVDROM or other multimedia plateforms

It help the trainer to organize and manage his/her lesson plans, present them to students/learners, evaluate and take the feedback to enhance & tune this process in future.

Major e-learning Portal

  (1) W3schools.com:-   This Portal consist everything you need to learn in school in handy (portable) format. It provide thousands of online web tutorials.
  www.w3schools.com

  (2) EXE Ptoject :- Its prime purpose is to assist the teachers and academic in publishing of web contents without knowledge HTML and XML
  www. exeLearning.org

  (3) **EduKart.com Project** aims to deliver degree and diploma programs for graduates and post graduates. It offers certification courses across multiple industries and functions, in the fields of Finance Management, Project Management, Software Engineering, Information Technology, Telecom industry, and more. All courses are supported by unlimited telephonic customer support.
  www.eduKart.com

Positive Social Impact :-

  1. Availability of same course to millions
  2. Boons for working class
  3. Student can learns with their own pace and capability
  4. *On-demand availability* enables students to complete training conveniently at off-hours or from home.

Negative Social Impact :-
1. High Dropout rate
2. Inappropriate content for e-learning may exist according to some experts,
3. e-learning solution is larger due to development costs.

Advantages to the Learner
- On-demand availability enables students to complete training conveniently at off-hours or from home.
- Self-pacing for slow or quick learners reduces stress and increases satisfaction.
- Interactivity engages users, pushing them rather than pulling them through training.
- Confidence that refresher or quick reference materials are available reduces burden .

Disadvantages to the Trainer or Organization
- Technology issues that play a factor include whether the existing technology infrastructure can accomplish the training goals,
- Cultural acceptance is an issue in organizations.
- e-governance   Electronic governance or e-governance is   the   application   of   information   and communication   technology (ICT) for delivering government   services, to fulfill the requirement of common man at affordable costs and in fastest possible time.

    MAJOR E-Goverance PORTAL
    (1) Passport and Visa Division: It is division of ministry of external affair to provide facility of issuing Passport to Indian people.
        http://passport.gov.in
    (2)Income Tax Portal –This portal provide facility to file Income Tax returns and TDS by TAX detectors , filling and filling and tracking of PAN and TAN Applications etc
    www.incometaxIndia.gov.in

Positive Social Impact :-
(1) It provide improved services of administration and delivery of services
(2) It Result in reduced waiting time
(3) It result in reduced cost of availing services.
(4) It helps to control corruption to some extent.

Negative Social Impact :-
(1) People leaving in remote area are not benefitted from it.
(2) Not all the services are part of E-Governance so manual method can not be avoided
(3) Problem in Payments due to less no of certified banks.
(4) Low speed is major obstacle in use of Internet.

- Q. What are Front-end (The user interface) and back-end (The database) ?

Answer : An IT application has two major parts:
Front-end (The user interface in java netbeans) and back- end (The database) .
The front-end of an IT application is usually a group of one or more forms through which the user enters the input values and is shown the corresponding output.
 The back-end of an IT application is the database in which all the data is stored. This database resides in the server. All the data which is requested by the front-end is supplied by back-end. A good back-end ensures sustainability, efficiency and easy modification of the application.
n IT application has two major parts: Front-end (The user interface) and back-end
    (The database).
WRITE STEPS TO WRITE STAGES OF PROGRAM DEVELOP MENT.
(1) Understand the Problem
(2) Design the front end
(3) Design the back end
(4) Connect Front end and back end using JDBC

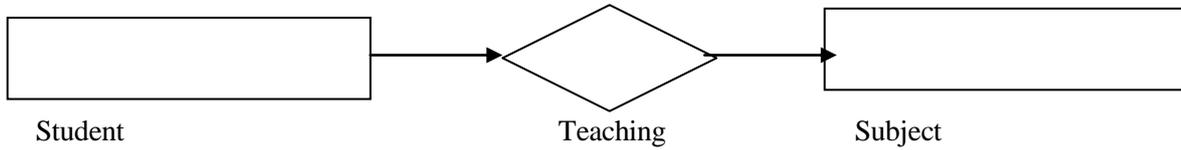   (5)   Compile the Program and find errors

    (6) Correct the error and run the program

Define (DDLC)- It is set of activity used to design a data base . It stand for Database development life cycle.

Entity:- It is an object that exist and is has some property . each entity has some attribute for example

If student is an entity then rollno name class all are its attribute.

ER- diagram (Entity Relationship) :- It is hign level conceptual schema diagram that is used to show relationship between two entity.

    Student   Teaching   Subject

HTML extra question

13.INSERTING IMAGE : Internet explorer can display image in your document if they are in BMP, JPG or GIF format. The image is generally larger take a long time to download by a computer using a modem, so it is always good idea to keep the number of images in your pages to a minimum.

<BODY >

<IMG SRC ="C:\WALLPAPERS\FLOWERS\ROSES.JPG" WIDTH=300 HEIGHT=200 >

 WHAT AN EXCITING PICTURE IS !

</BODY>

 (Note: Save it with name PAGE3.HTML)

14. ANCHOR TAG:(Hyperlink) The simplest possible anchor starts with <A> and ends with </A>. However you will never use the <A> tag by itself because it does not do anything. You need to enhance the <A> tag with attribute HREF. It stand for Hypertext Reference. It tell the location of the file you want to load. Most anchor are in the form <A HRFE = "URL" > where URL is Uniform resource locator.

<A HREF= www.cbse.nic.in"> Open the CBSE web site   </A>