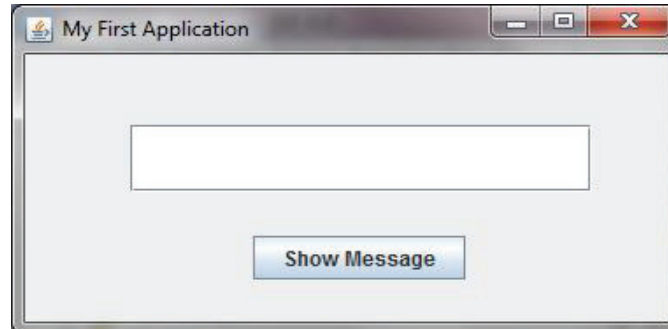# Unit 2: JAVA Programming

Experiment No.1:

Objective: To get familiar students with NetBeans IDE and developing a simple application using some commonly used swing controls.

Task: Develop an application to display a Welcome message when 'Show Message' button is pressed.

Experiment No. 2:

Objective: Understanding of Form design using commonly used controls with setting Fonts, Color and appearance to deliver a better 'Look and Feel' interface. Students may get familiar with Layout Manager of NetBeans.

Task: Develop a Data entry form for School Admission System as per design given below, using proper font size, color etc. Also add functionality to clear all the text boxes when Clear button is pressed.

Experiment No. 3:

Objective: Understanding of event and methods with some action. Getting input of Text field and setting text on other text field. Closing application with the help of System.exit(0) command.

Task: Develop an application to display full name for given first name and last name when Show button is pressed.

Experiment No. 4:

Objective: Explore the use of Panel, Buttons and Text fields. Setting text display with Alignment property of text field.

Task: Develop a Pager application to simulate the functionality of Pager. The numbers when pressed are displayed right aligned on the display panel and a Dialing message appears when 'Dial' button is pressed. Display panel gets clear when Clear button is clicked.

Experiment No. 5:

Objective: Understanding and use of variables in the application.

Task: Develop a simple Adder application as per given screen snapshot, to add two given numbers.
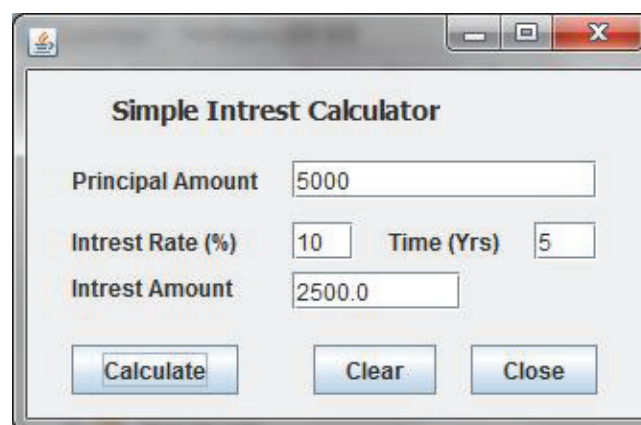
Experiment No. 6:

Objective: Understanding and use of variables of float and other data types.
Task: Develop a simple Calculator application as per given screen snapshot, to implement +, -, x and / operations. The text boxes get cleared when 'C' button is clicked.
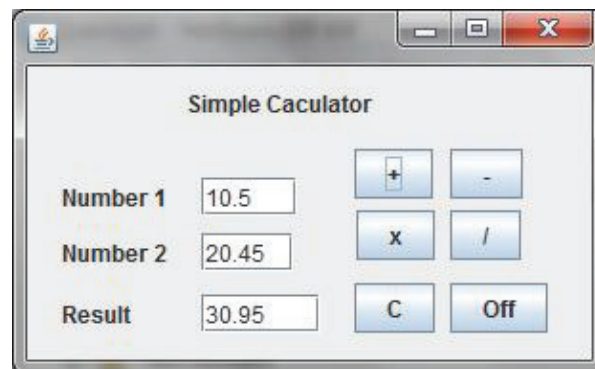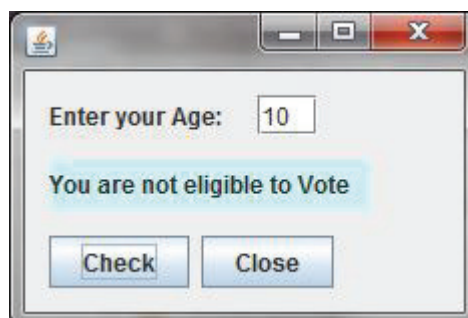

Experiment No. 7:

Objective: Understanding the real life application requirement and developing a solution.
Task: Develop a Simple Interest Calculator application as per given screen snapshot, to calculate simple interest for given Amount, Rate of Interest and Time using (I=P*R*T/100) formula.

Experiment No. 8:

Objective: Understanding the use of simple If.. Condition with relation operator in the application.
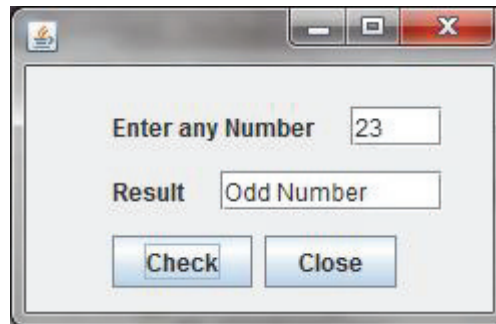**Task:** Develop an application to display a relevant message based on the given age. If given age is greater or equal to 18 then 'Eligible to Vote' message appears otherwise 'Not eligible' is displayed when user presses Check button.
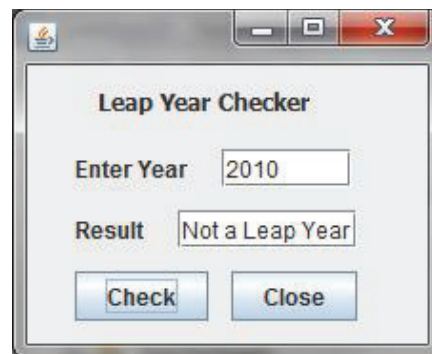
Experiment No. 9:

Objective: Understanding the use of Condition statement with relation and Arithmetical operator with variables in the application.

Task: Develop an application to check whether a given number is Even or Odd.

Experiment No. 10:

Objective: Understanding the use of If..else ladder statement with relation operator and variables in the application.

Task: Develop an application to check whether a given year is Leap year or not. Leap year are those year which are divisible by 100 and 400 or divisible by 4 only.

Experiment No. 11:

Objective: Understanding the Real life application using conditional statements and calculations.

Task: Develop a Discount Calculator application for a Computer shop. The discount is given as per the following rules.
If total amount >= 10000 then discount is 15%. If total amount >= 5000 and <10000 then discount is 10%. If total amount < 5000 then discount is 5%.
Total amount, discount and Net amount is calculated when Calculate button is pressed. All the text Boxes gets cleared when Clear button is pressed.
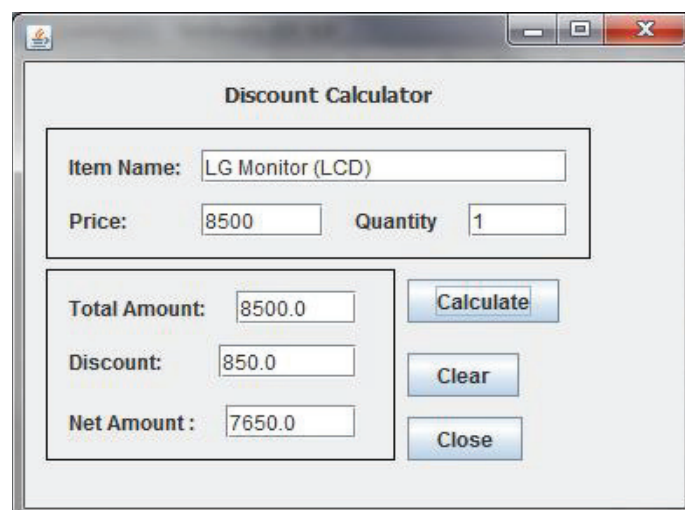
Experiment No. 12:

Objective: Understanding and use of Nested conditions in the Real life applications.

Task: A Quick Fox Transport Co. wants to develop an application for calculating amount based on distance and weight of goods.
The charges (Amount) to be calculated as per rates given below.

Distance	Weight	Charges per Km.
>=500 Km	>=100 kg.	Rs. 5/-
	>=10 and <100 kg.	Rs. 6/-
	< 10 kg.	Rs. 7/-
<500 Km	>=100 Kg.	Rs.8/-
	<100 Kg.	Rs.5/-

Experiment No. 13:

Objective: Understanding and use of Else-if ladder of conditions in Real life applications.
Use of variables in calculations and Panels in good interface design.

Task: ABC Public School uses an application for calculating Total marks, percentage and grades of students for given marks in five subjects with maximum marks of 100. The Screen shot and Grade calculation rule is given below.

Total Marks	Grade
>=90	A+
80-89	A
70-79	B
60-69	C
50-59	D
40-49	E
<40	Detained

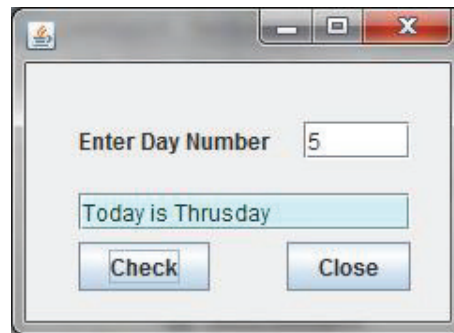## Experiment No. 14:

Objective: Understanding and use of Switch-case statements.
Task: Develop an application which determines and display day for given Day number of a week. The screen shot is given below.

Experiment No. 15:

Objective: Understanding and use of Java's math methods in mathematical calculations.
Task: Develop an application which calculates Area, Perimeter and Diagonal for given length and breadth.
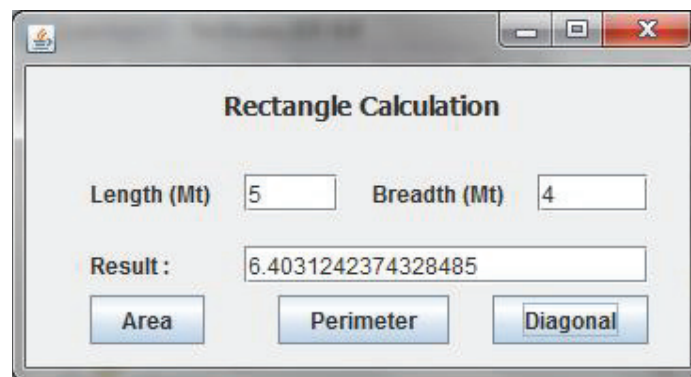
Experiment No. 16:

Objective: Understanding and use of Looping statement like for.. loop.
Task: Develop a Table Generator Application which calculates and prints a table of given number.
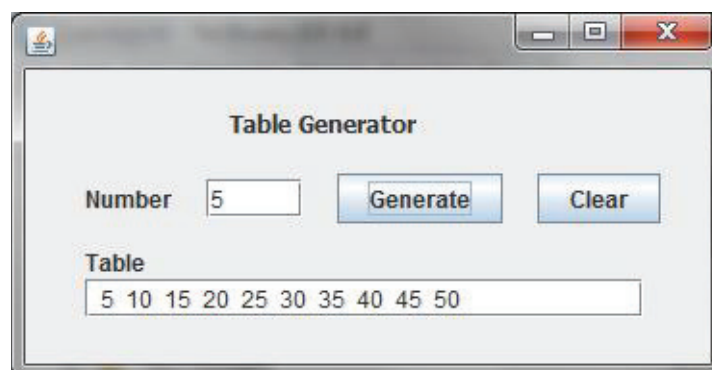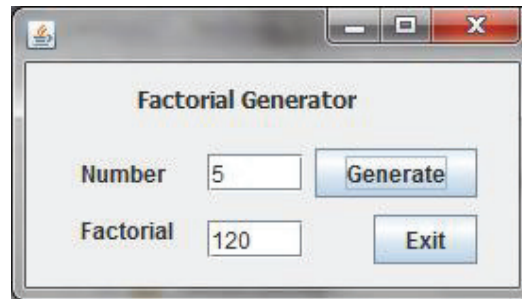

Experiment No. 17:

Objective: Understanding and use of Looping statement.
Task: Develop a Factorial Generator Application which calculates and prints a factorial of given number. Factorial of a number is obtained by summing of multiplications from 1 to given number i.e. Factorial of 4 is 1x2x3x4 =24.

Experiment No. 18:

Objective: Understanding and developing a logic to solve a problem. Use of loops and breaking it prematurely.
Task: Develop a Prime Checker Application which checks whether a given number is Prime or not. Prime numbers are those numbers which are divisible by one or itself only.
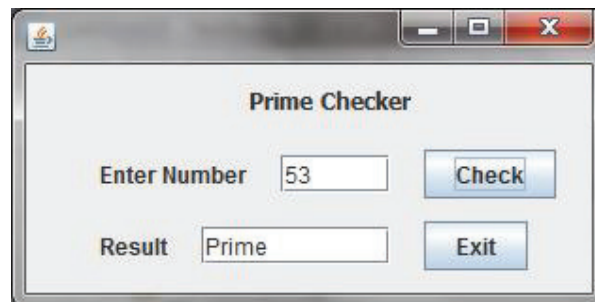
Experiment No. 19:

Objective: Understanding and use of Nested loops and Text Area control.
Task: Develop a Java application to print a Pattern for given character and steps, as per given screen shot.
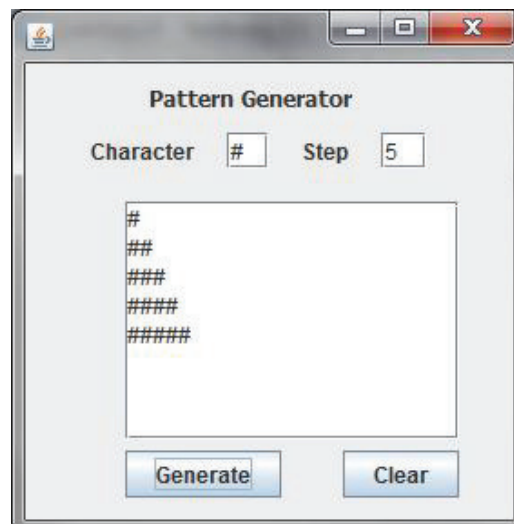
Experiment No. 20:

Objective: Displaying images on a Label and Text Area control.
Task: Develop an e-Learning application with images and text information as per given screen shot.
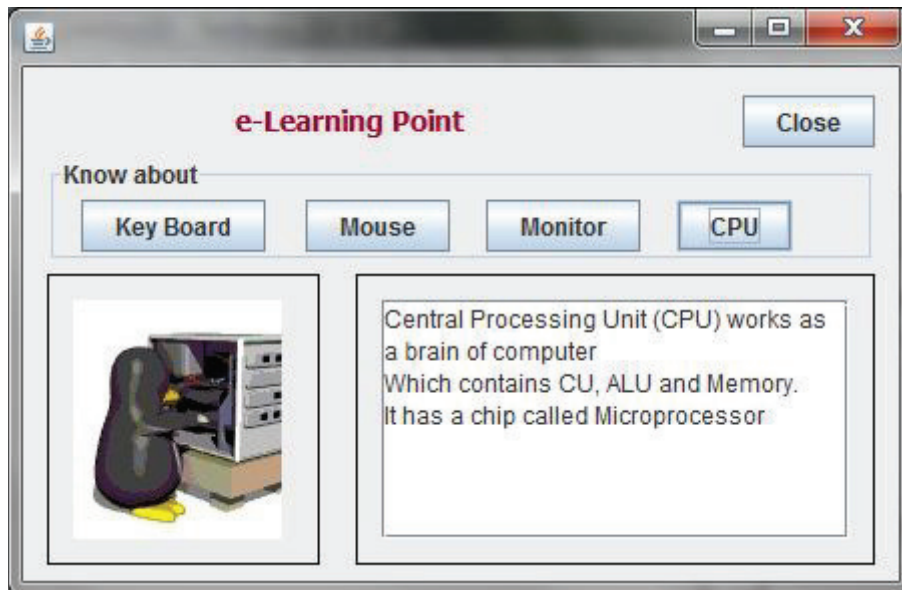
Experiment No. 21:

Objective: Use of password field control and Built-in Message dialog using JOption pane object. Also demonstrates string comparison in Java.
Task: Develop a Login screen as given below. A Message dialog with relevant message is appears as per given valid or invalid password.
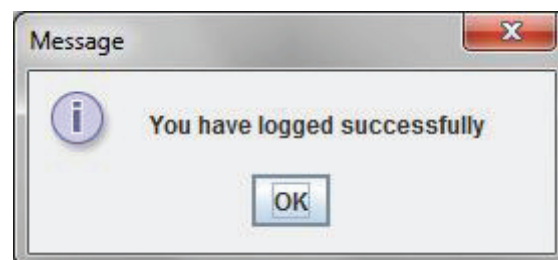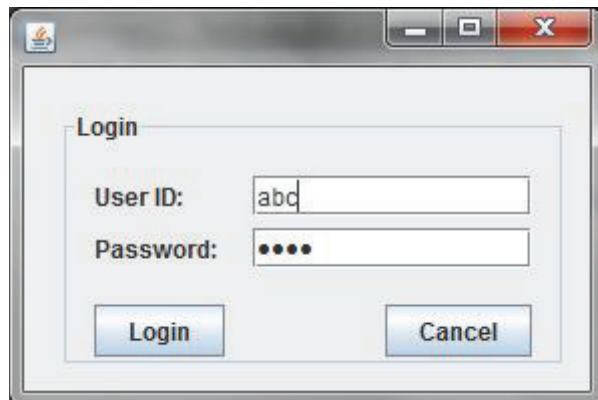
Experiment No. 22:

Objective: Use of Check Box and Radio Button controls, with customizing the color and appearance of text in Text Boxes.
Task: Develop an application as per given below to customize the appearance of given text in selected color and style.
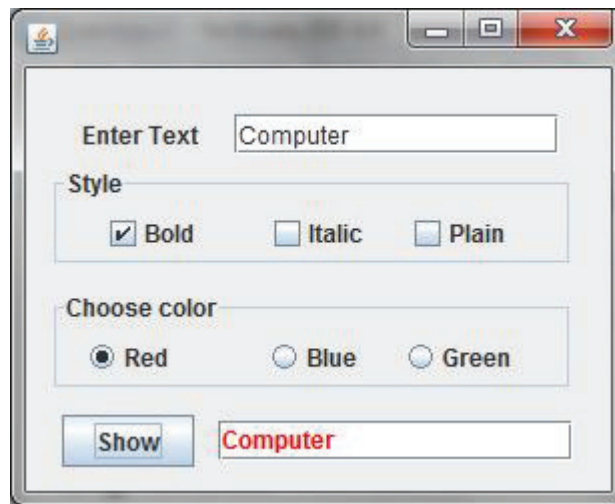
Experiment No. 23:

Objective: Use of Slider or Scroll bar control to get user input and using it some calculation.

Task: Develop a Temperature Converter application which converts selected Celsius temperature on a scale and displays it equivalent Fahrenheit temperature.
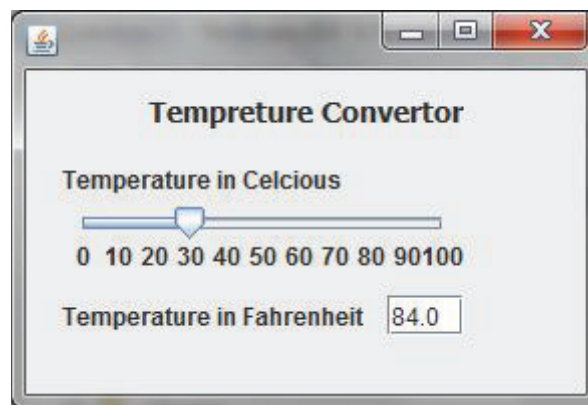
Experiment No. 24:

Objective: Understanding and using the Radio Button in Real-life application to determine the selection of choice and calculations accordingly.

Task: Develop a Billing application for Happy Shoping- A retail chain involve in sales of Readymade garments. The happy Shoping offers discount to its members holding Platinum, Gold and Silver card.
The 10% discount is given to Platinum card, 8% to Gold Card and 5% to Silver Card holders on sales amount.

Experiment No. 25

Objective: Understanding and using the Radio Button in Real-life application to determine the selection of choices and calculations accordingly.

Task: The Entertainment Paradise- A theater in Delhi wants to develop a computerized Booking System. The proposed Interface is given below. The theater offers different types of seats. The Ticket rates are-
Stalls- Rs. 625/-, Circle- Rs.750/-, Upper Class- Rs.850/- and Box- Rs.1000/-.
A discount is given 10% of total amount if tickets are purchased on Cash. In case of credit card holders 5% discount is given.

Experiment No. 26

Objective: Demonstration of use of List control.

Task: Develop an application as per given screen shot to display the given text in selected color using List control.
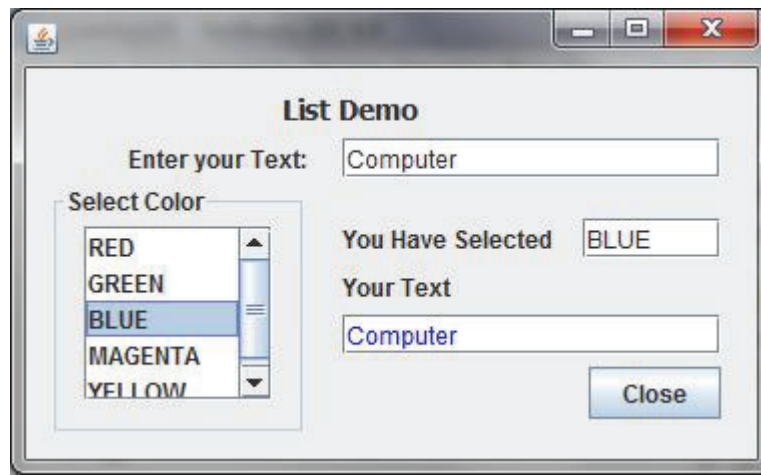
Experiment No. 27

Objective: Demonstration of use of Combo control.

Task: Redesign the application developed in Experiment 26, using combo control.
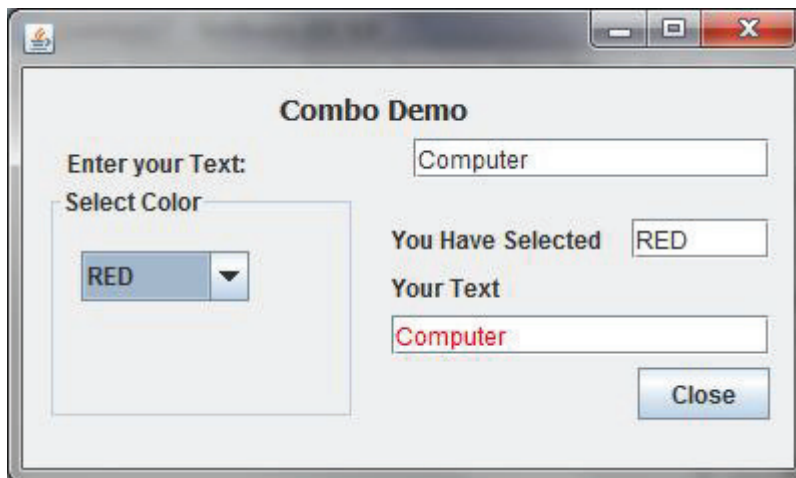
Experiment No. 28

Objective: Demonstration of use of List Dynamically through code.

Task: Develop an application as per given screen shot to Add , Remove the given members of list and display the selected item in a text field using List control.
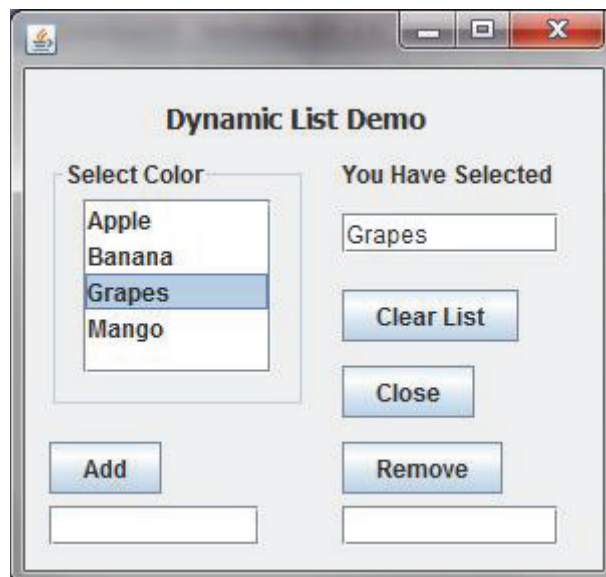
Experiment No. 29

Objective: Developing Multi-Frame Application using JDialog Control.

Task: Develop an e-Mail sending Application which facilitates the login and composing screen as given below. A Message box also displayed with proper message when invalid password is given by user and when mail is sent after pressing Send button.
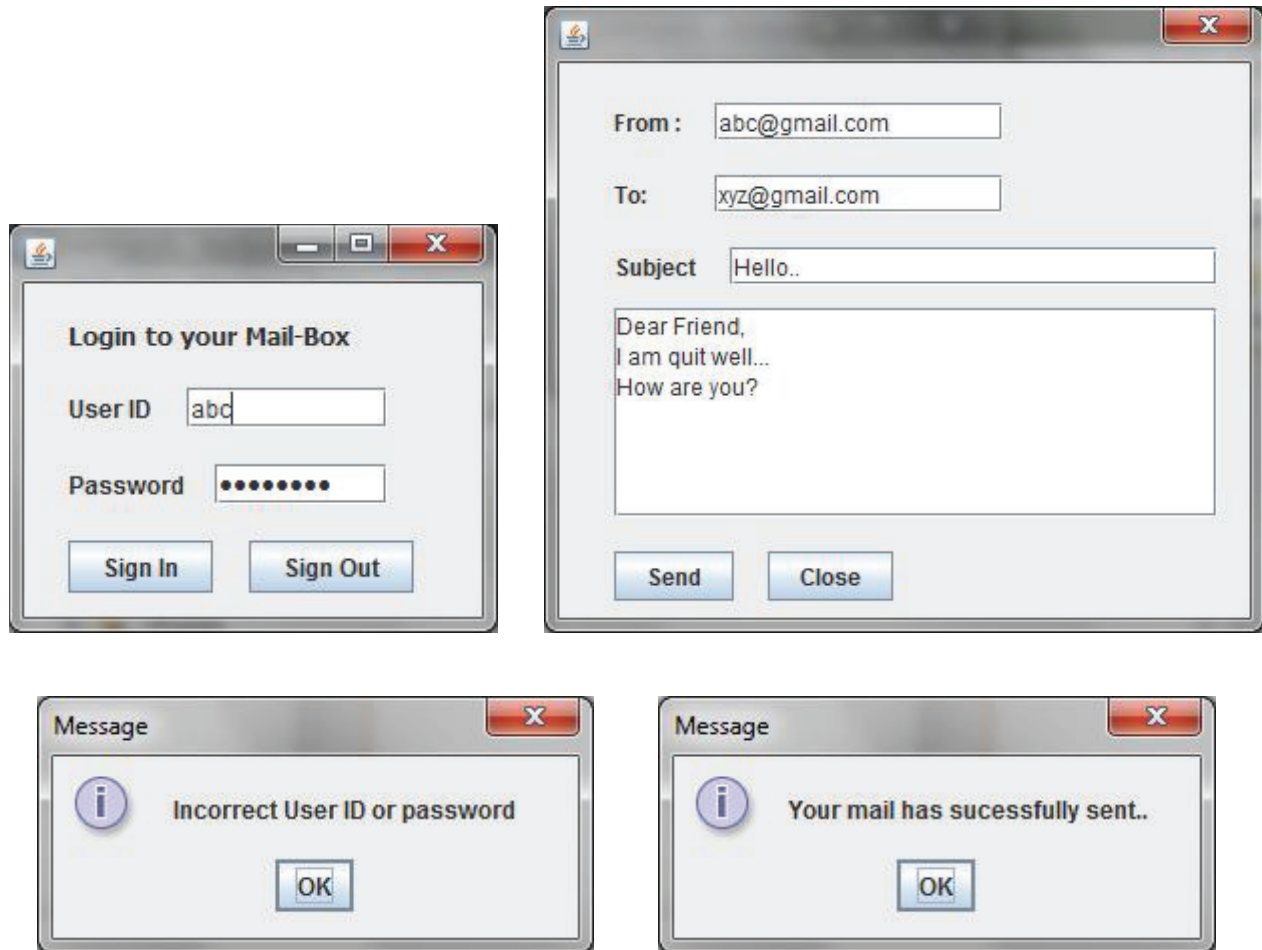
Experiment No. 30

Objective: Understanding the use of User-defined methods in the application.

Task: Develop an application to compute the Factorial and Checking Prime for a given number, using custom methods. A method named factorial() and CheckPrime() along with suitable parameters are called when Get Factorial and Check Prime button is pressed respectively.
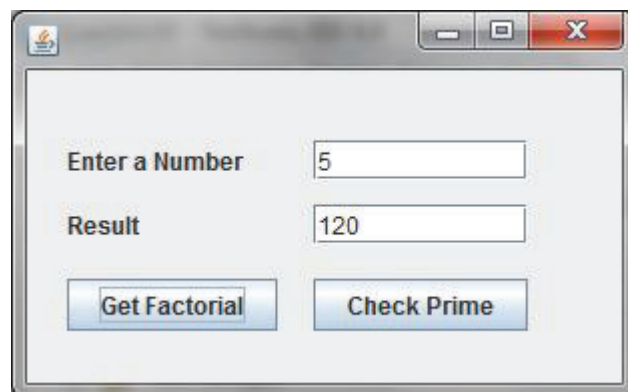
Unit 3: Relational Data Base Management Systems

Experiment No. 1

Objective: Understanding the use of DML command at MySQL plateform.

Task: Open MySQL and Login with your ID and password given by your Teacher. Write and Execute the SQL command for the following and also write the steps/commands in your Practical notebook.

1. Create a Database named MYORG.
2. Open the Database with USE command.
3. Create a table name Emp with following structure.

empno	ename	job	hiredate	sal	comm
Number	Varchar	Char(10)	Date	Number	Number

4. Insert the following Records-

empno	ename	job	hiredate	sal	comm
8369	SMITH	CLERK	1990-12-18	800.00	NULL
8499	ANYA	SALESMAN	1991-02-20	1600.00	300.00
8521	SETH	SALESMAN	1991-02-22	1250.00	500.00
8566	MAHADEVAN	MANAGER	1991-04-02	2985.00	NULL
8654	MOMIN	SALESMAN	1991-09-28	1250.00	400.00
8698	BINA	MANAGER	1991-05-01	2850.00	NULL
8882	SHIVANSH	MANAGER	1991-06-09	2450.00	NULL
8888	SCOTT	ANALYST	1992-12-09	3000.00	NULL
8839	AMIR	PRESIDENT	1991-11-18	5000.00	NULL
8844	KULDEEP	SALESMAN	1991-09-08	1500.00	0.00

5. Write a query to display all the records with all the columns.
6. Write a query to display EName and Sal of employees whose salary are greater than or equal to 2200
7. Write a query to display details of employs who are not getting commission.
8. Write a query to display employee name and salary of those employees who don't have their salary in range of 2500 to 4000.
9. Write a query to display the name of employee whose name contains "A" as third alphabet in Ascending order of employee names.
10. Write a query to display the ename and sal with 50% of sal as DA.
11. Write a query to display the name of employee whose name contains"M" as First and "L" as third alphabet.
12. Write a query to display details of employs with the text "Not given", if commission is null.
13. Display the distinct job titles offered by the Organization.
14. Display the Names of employees who are working as Manager or Analyst.
15. Display the names of employees who joined the organization on or after 01/05/1991.

Experiment No. 2

Objective: Understanding the use of DML command with MySQL functions.

Task: Open MySQL and load MYORG database. Write and Execute the SQL command for the following and also write the steps/commands in your Practical notebook.

1. Write commands to display the system date.

2. Write a command to display the name of current month.

3. Write command to print the day of the week of your birthday in the year 2015.

4. Write a query to display employee names in lower case from Emp table.

5. Write a query to display last 3 characters from all the names of employee from Emp table.

6. Write a query to display ename alon with the position of 'N' character in ename column from Emp table.

7. Write a query to display ename and two characters from 2nd position in job column from Emp table.

8. Write a query to display ename and weekday on which they joined from Emp table.

9. Write a query to display ename alon with number of years(experience) as on today from Emp table.

10. Write a query to display ename, Job and Date of retirement (60 years after Hiredate) from Emp table.

11. Write a query to find out the result of 6^3.

12. Write a query to find out the result of $30^{1/2}$ (Square root of 30)

13. Write the command to display the ename and its length from Emp table.

14. Write the command to round off value 15.193 to nearest ten's i.e. 20.

15. Write a query to display ename concatenated by job from Emp table.

Experiment No. 3

Objective: Understanding the use of DDL commands.

Task: Write and Execute the SQL command for the following and also write the steps/commands in your Practical notebook.

1. Create table CUSTOMER as per following Table structure.

Column Name	CustID	CustName	CustAdd	CustCity	CustPhone
Data Type	NUMBER	VARCHAR	VARCHAR	VARCHAR	VARCHAR
Length	7	30	40	30	10
Constraints	Primary			Not Null	

2. Insert 5 records with relevant information in the Customer table.
3. Update all the records as add 'Mr.' with CustName.
4. Add one column Email of data type VARCHAR and size 30 to table Customer.
5. Add one more column CustIncomeGroup of data type VARCHAR(10).
6. Drop the column CustomerIncomeGroup from table Customer.
7. Modify the column CustCity as change the size 40 characters long.
8. Delete all the records who belongs to 'Jaipur'
9. Create table ORDER as per following Table structure. Also make CustNo as Foreign Key which refers CustID of CUSTOMER table.

Column Name	OrderNo	CustNo	ItemName	Qty	Price
Data Type	NUMBER	NUMBER	VARCHAR	NUMBER	NUMBER
Length	5	7	30	5	6,2
Constraints	Primary			>=2	Not Null

10. Add 5 records as per defined constraints in Order table.
11. Create a table TEMPCUSTOMER from existing CUSTOMER table with CustID, CustName and CustPhone columns.
12. Write command to show the Tables in the MYORG Database.
13. Drop the TEMPCUSTOMER table.
14. Drop the Foreign Key constraints from the Order Table.
15. Drop the database MYORG.

Unit 4: IT Applications

Experiment No. 1

Objective: Understanding the Application Area of IT and latest happening in IT.

Task: Write the brief note in about the following in your Practical notebook.

1. Visit Three Web sites related to e-Governance and point out its major services offered to the people.

2. Visit Three Web sites related to e-Business/Commerce and point out its major services offered to the customers.

3. Visit Three Web sites related to e-Learning and point out its major services offered to the learners.

4. Login to ThinkQuest and Make a page named 'My Survey to IT Application' and post all the comments about visited web portals along with their links.

5. Document a Project assigned by your teacher.

Class XI – Practical Examination Guidelines

S.No.	Description	Marks
1.	Problem Solving using Java	12
2.	SQL Queries	4
3.	Practical Record • Familiarization of Computer and its Productivity Tools • Simple Problems using IDE Java • SQL Queries • IT Applications	8
4.	**Viva Voice**	6
	TOTAL	**30**

Evaluation of Practical Examination

1. Problem solving using Java

Student is required to solve programming problems based on all concepts covered in theory throughout the year and maintain a record of these in the practical file.

Student will be given a problem to be solved using Java during final Practical examination to be conducted at the end of the academic session

2. SQL Queries

Students will be trying out SQL queries in MySQL throughout the year along with course coverage in theory.

Student will be asked to write 4 queries based on one or two tables during final practical examination to be conducted at the end of the academic session

3. Practical Record File

A practical record file is required to be created during the entire academic session. It should be duly signed by the concerned teacher on regular basis and is to be produced at the time of Final Practical Examination for evaluation. It should include the following:

- Print out of at least 2 documents with use of Different Style, Page Setting/Formatting, Bulleting/Numbering and Tabulation

- Print out of at least 2 spreadsheets with simple calculations, basic Functions, macros and graphs/charts

- At least 6 solutions of simple problems and 2 IT applications using IDE based Java.

- At least 20 SQL queries based on one table

4. Viva Voce

Students will be asked oral questions during practical Examination to be conducted at the end of the course. The questions will be from the entire course covered in the academic session.