**Lab:**

1. Write a Guessing a number game application: User will select the guessing value from the keyboard and application will generate a random no between 1 and 100. Check if the guess value matched with random no. or not, if matched show the guessing value, random value and the no. of attempts.
2. Create a class called Distance that includes two private data members feet (type int) and inches (type float). Use a method setData to set values to instance variables. Provide a method display that displays the feet and inches, a member function addDistance for adding two distances, and a member function compareDistance for comparing two distances. Implement your program in Java.
3. Write a program that calculates percentage and GPA of 5 students. Each of the students has following attributes: name, class, rollnum, and marks obtained in 5 subjects.
4. Create a class called Time with three attributes hours, minutes, and seconds. Use appropriate constructor (s) to initialize instance variables. Also, use a display method to display the time in hh:mm:ss format. Modify the class to add two time objects that correctly results in addition of times.
5. Create a class called Employee that includes three pieces of information as instance variables a first name (type String), a last name (type String) and a monthly salary (double). Your class should have a constructor that initializes the three instance variables. Provide a set and a get method for each instance variable. Write a test application named EmployeeTest that demonstrates class Employee's capabilities. Create two Employee objects and display each object's yearly salary. Then give each Employee a 10% raise and display each Employee's yearly salary again.
6. Create a class called Date that includes three pieces of information as instance variables a month (type int), a day (type int) and a year (type int). Your class should have a constructor that initializes the three instance variables and assumes that the values provided are correct. Provide a set and a get method for each instance variable. Provide a method displayDate that displays the month, day and year separated by forward slashes (/). Write a test application named DateTest that demonstrates class Date's capabilities.
7. Create class SavingsAccount. Use a static variable annualInterestRate to store the annual interest rate for all account holders. Each object of the class contains a private instance variable savingsBalance indicating the amount the saver currently has on deposit. Provide method calculateMonthlyInterest to calculate the monthly interest by multiplying the savingsBalance by annualInterestRate divided by 12. This interest should be added to savingsBalance. Provide a static method modifyInterestRate that sets the annualInterestRate to a new value. Write a program to test class SavingsAccount. Instantiate two savingsAccount objects, saver1 and saver2, with balances of $2000.00 and $3000.00, respectively. Set annualInterestRate to 4%, then calculate the monthly interest and print the new balances for both savers. Then set the annualInterestRate to 5%, calculate the next month's interest and print the new balances for both savers.