Java Assignment

Variables and data types

1. write a program to print Hello.
2. write a program to print addition of two numbers.
3. write a program to calculate area of rectangle.
4. Write a program to calculate simple interest taking input from user.
5. Write a program to calculate the cube of entered number.
6. Write a program to take any employee details and display it.
7. Write a program to take a number from user decrement the value by 3

Conditional statements

1. Write a program to find greater number between two entered numbers.
2. Write a program to find to entered numbers are equal or not?
3. Write a program to find the entered number is positive or negative.
4. Write a program to find the entered number is even or odd.
5. Write a program to find the entered character is vowel or not?
6. Write a program to print the days of the week according to the entered day number.
7. Write a program to perform arithmetic operations between two integer values according to the operator entered by user.

logical operators

1. Write a program to check entered character is vowel or not?
2. Write a program to print weekday if entered day number is 1,2,3,4,5
   and print weekend if entered day is 6 or 7.and invalid day if value not between 1 to 7.
3. Write a program to find greatest among three numbers.
4. A candidate is recruited based on following criteria:
   If male, age should be above 30 yrs and height above 160.
   If female, age should be above 25yrs and height above 155.

loops

1. Write a program to print values from 1 to 10.
2. Write a program to print values from 10 to 1.
3. Write a program to print values from 5 to 15.
4. Write a program to print values from 1 to entered number.
5. Write a program to print entered name n number of times.
6. Write a program to print the table of 5.
7. Write a program to print the table of entered number.
8. Write a program to print the values between two entered number.
9. Write a program to print the factorial of entered number.
10. Write a program to print sum of first five positive integer numbers.

11. Write a program to find entered number is prime or not.
12. Write a program to print all the even numbers between 1 to 20

Strings

1. Write a program to print your entered name in reverse order.
2. Write a program to print every third character of entered string.
3. Write a program to find the number of characters present in string without using len()
4. Write a program to print the number of vowels present in entered string.
5. Write a program to find a character present in string or not?if present in which index it is present .and how many times it is present.

Arrays

1. Write a program to print the sum of integer values present in array.
2. Write a program to find entered name is present in list of employees name or not.
3. Write a program that accepts a list of values from user and print the alternate element of list.
4. Write a program to count total number of even,odd and zeros in array.
5. Write a program to find largest element from array.

Functions

1. Write a java function to find the Max of three numbers.
2. Write a java function to sum all the numbers in a array.
3. Write a java function to multiply all the numbers in a array.
4. Write a java program to reverse a string.
5. Write a java function to check whether a number falls in a given range.
6. Write a java function that accepts a string and calculate the number of upper case letters and lower case letters.

OOPS

1. Write a python program using class which contains two variables of type integer. Create and initialize the object using parameterized constructor. Write a method to display maximum from given two numbers for all objects.
2. Write a program to perform all the arithmetic operations between two numbers.
3. Write a program to find the records of students having greater marks.
4. Write a java program to create a class Item with data members Item_Code, Item_Name, Item_Price. Write method to accept and display Item information also display number of objects created for a class. (Use Static variable and Static method)
5. create square class with field(data member) as 'side'. also create a parameterised constructor. write a method to find area of a square. test the class in testSquareClass. (area=side*side).
6. Create a class book having title, publisher, author with parameterised constructor using this keyword. Write a method to display the details of the book and test the class by creating 5 objects.

7. create a class person with data members as name,age,city.write getters and setters for all data members.Also add the display function.create default and parameterised constructors.
   create the object of this class in main method and invoke all the methods in that class.
8. Create class date with data members as dd,mm,yy.write getters and setters for all the data members.also add the display function.create default and parameterised constructors.create the object of this class in main method and invoke all the methods in that class.
9. Create class ComplexNumber with data members real,imaginary.Create default and parameterised constructors.create the object of this class in main method and invoke all the methods in that class.
10. In Person class,add data members as id,name,location,add a static data member count and add the following methods.
    a.default constructor
    b.parameterised constructor
    c.static method displayCount in main method create array of 5 objects. and display it.
11. Create student class with data members roll_no,name,marks.
    - Create a default constructor, parameterised constructor
    - Create TestStudent class and ask the size for creating Student array
    - create objects to store in array.
    - display the data of student
    - write a method to Find out highest marks
12. Create Employee class with data members id,name,salary.
    - Create a default constructor, parameterised constructor
    - Create TestEmployee class and ask the size for creating Employee array
    - create objects to store in array.
    - display the data of Employee
    - write a method to Find out highest salary

method overloading :

1. create class volume to find volume of cylinder and volume of cube by creating vol() method respectively. use overloading concept.
2. create class area to find the area of rectangle and circle by creating area() method.use overloading concept.

Method overriding :

1. Create class Employee with data members name, age, salary . Create parameterised constructor. write a method to display employee details. Write a method to calculate total salary of employee with allowance.(Take allowance as an argument).
   Create a manager class with data member noOfProjects . inherit the constructor from employee class. Override the method to calculate manager total salary with bonus(bonus as argument).
   Create a HR class with data members noOfRecruitments. Inherit the constructor from employee Class .
   Override the method to calculate HR total salary with incentives(incentive as argument).

2. create shape class where color is data member and a method void area().use parameterised constructor .Rectangle with data member as length and breadth and Triangle has base and height as data member are two subclasses of shape. override the method area in both the subclasses.
3. write a program for following inheritances.
   a) Game has one data member as typeOfGame and parameterized constructor.
   b) Football, Cricket are subclasses.
   c) Cricket has two subclasses Batsman and baller.
   d) For each classes create a parameterised constructor use super keyword.
   e) For football playerName,noOfGoals is the data member use parameterised constructor and a method to print the details.
   f) for cricket typeOfPlayer is the data member and use parameterised constructor and a method
   to print details.
   g) For Batsman and baller data member will be noOfRuns and noOfWickets.print the details resp. create testGame class to test your data.

Abstraction :

1. Create class Transportation with source and destination as attributes and abstract method transport().inherit Bus and Flight class from transportation class.Give the relevant attributes. Override transport method and call it through base class ref.
2. Create a class Camera with camera_id,name and click() as abstract method.Override it in class DSLR, CCTV. invoke click method and call it through Camera ref.
   Create an abstract class shape with two abstract methods area() and peri().
   -create a circle class with a data member radius and make the valueof pi final.implement the abstract methods here.
   -Create a rectangle class with data member length and breadth.implement abstract methods here.
   -create test class and call the respective methods of each subclass using ddt.
   (dynamic dispatch technique)
3. Create an abstract class volume which has an abstarct method vol().Implement the method in the cube class as well as in cylinder class.

Interfaces :

1. Create interface Area with an abstarct method area()
   -Create interface Circumference with an abstract method circum()
   -Create abstract class Diameter with abstract method dia()
   -Create circle class with data member,radius and make the value of pi final. Create para constructor to take the value of radius.
   -Implement all the abstract methods.
   -Create a test class to call all methods resp.

2. Create an interface Vehicle which has a method speed() and implement this method in Bike and Car class. Create input method which ask the speed from the user and calculate the distance accordingly. Also create a Test class to test the methods.(distance=speed*time)

Exception Handling

1. Write a program to find the exception Marks Out Of Bounds. Create a class student.If the mark is greater than 100,it must generate the user-defined exception called Mark Out Of Bound Exception and throw it.
2. Write a class account with acc_no, name and balance. Initialize values through parameterized constructor. If balance is in between 1000 and 5000 generate user-defined exception. “Balance Within range”.
3. Create a class OlaRide(ride_id, source, destination, distance function bookRide should handle user defined exception if distance is less than 5km and appropriate msg is displayed.
4. Create user defined exception Age exception to throw exception in voter class by creating a method void validate(int age) which accepts person age greater than 18 is validate to vote else throw age exception
5. Create a class "user" storing the information like username and password.Give appropriate constructors and functions. If password length is less than eight characters ,user defined exception should thrown and appropriate message should be shown
6. Create user defined class RollerCoaster and throw the exception as “AgeException” to check the valid age for a ride.Age greater than 12 is allowed for the ride else print a proper message “you should come after – years”).Age greater than 60 is not allowed for the ride else print a msg that “you should have come before – years”

Collection Framework :

1. Create student class with data members roll_no,name,marks.
   Create parameterised constructor of the student
   write a toString() method to display the student details.
   Create TestStudent class and create at least 3 objects.
   Create arraylist and make it generic to student class and add objects to it.
   print the data in forward and backward direction.
   Sort according to roll_no.

Inner classes :

1. Create an interface Shape and write an abstract method area().Use anonymous inner class to implement area() method.