Haaris Infotech

Day 1

1. Write a program to print "Hello World" on Console.
2. Write a program to print default values of all primitive types.
3. Write a program to declare all primitive data types with all possible types of initialization and also check implicit and explicit type casting by assigning them to each other.
4. Write a program to find weather a number is Prime or not
5. Write a program to calculate average of the n number using a separate function other than main.
6. Write a program to resize an array.
7. Write a program to sort an array element in ascending or descending order
8. Write a program to find the location of element in the Array.
9. Write a program to reverse elements in the Array
10. Write a program to display number matrix as follows using Two Dimensional Rectangular Array.

    1 2 3 4

    5 6 7 8

    9 10 11 12

    13 14 15 16

11. Write a program to display number matrix as follows using Two Dimensional Rectangular Array.

    1

    2 3

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4 5 6

7 8 9 10

12. Write a Program to access command line arguments.

13. Write a Program to calculate result of students.(take no of student as rows and marks as columns of two Dimensional Array)

14.

a) Write a program with comment documentation. Execute javadoc on file and view through web browser

b) Try to execute java program by giving different name to class and file.

c) Try to execute java program by defining main

i) Without public modifier

ii) Without static modifier

iii) Without function parameter

15. Write a program :

a) To generate a Prime number list between 1 to 100

b) To check given number is an Armstrong number or perfect number or palindrome or none of these

16. Write a program to search a given element is present or not? If present, display the location and how many times it occurs

17. Write a program to test:

a) to modify const member

b) to access static member in a non -static method

c) create a class with one argument constructor and try to instantiate object without parameter

18. write a program to convert number into words

Example: 125 as one two five (or one hundred twenty five)

19. Write a program to reverse the elements of each row in a two dimensional array

20. Write a program to find the largest element in each row of a two dimensional array

21. Write a program using Switch–case to print number of days in a month. For the month of February check for leap year and calculate.

22. Create a class with public, private, protected, and default data members and method members. Create an object of this class and see what kind of compiler messages you get when you try to access all the class members from out side this class

23. Create a class with protected data. Create a second class in the same file with a method that manipulates the protected data in the first class

24. Write a simple Java class for quadratic functions of the form $f(x) = ax^2 + bx + c$.
It contain the following elements:

- **fields for values a, b, and c,**

- a constructor with no parameters (setting a, b, and c to 1),
- a constructor with 3 parameters, to specify a, b, and c,
- three extractors that return the values of a, b, and c, respectively,
- a modifier that requires three parameters, one each to give new values to a, b, and c,
- a compute method that takes a parameter x and that returns the value *f(x)* for the given values of a, b, and c, and a main method that exercises each of the methods.

25. protected class base {

```
String Method() {
return "Wow";
}
}
class dervied {
public void useD() {
base z = new base();
System.out.println("base says, " + z.Method());
}
}
```

Compile this and see what happens

26. What is the problem with the following code? It compiles and runs, but the output is

□ numbers are the same. However, the numbers are not the same.

```
// sample.java
```

```
public class sample {
 public static void main(String[] args)
 {
 int i = -243;
 int j = 243;
 if(i == j);
 System.out.println("numbers are the same");
 }
}
```

27. Create a program that calculates how much a $14,000 investment would be worth if it increased in value by 40% during the first year, lost $1,500 in value the second year, and increased 12% in the third year.

Day 2 (inheritance)

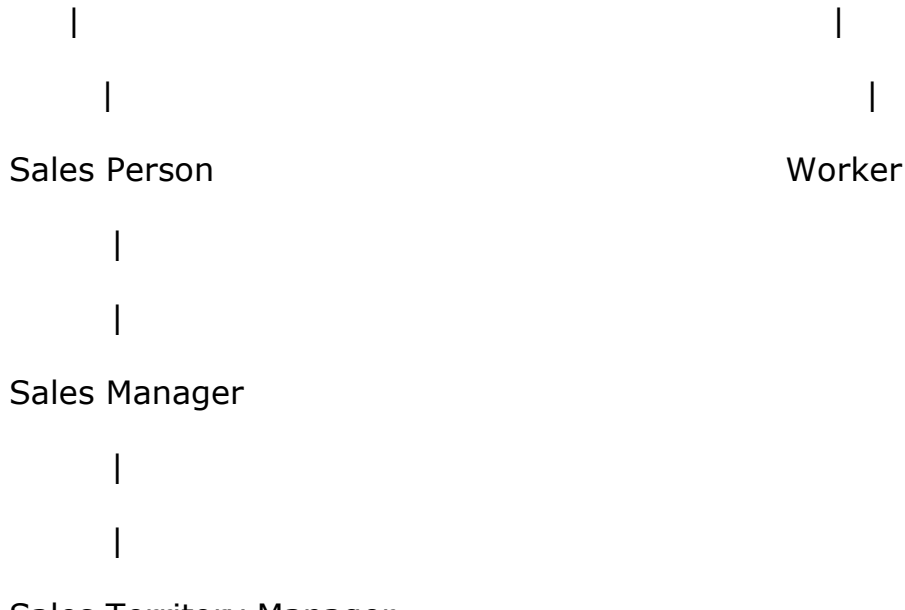
1. Write a program to prove that Primitive data types are passed by value and object and arrays are passed by reference.
2. Write a program to add two complex number using this reference
3. Write a application to implement a Pay Roll System for an Organization

Employee

|

|

_____ |_____



Each will have Date class to represent Date of Joining

4. Write a program to implement stack of integer numbers.
5. Write a program to calculate the number of object created at any point using user defined class
6. Write a program to prove the order of initialization for static block.
7. Write a program to change state of object using the final reference variable.
8. **write a program to create Singleton Class**

(Program should not allow more than one instance at a time)

9. **Create a class A. add public, private and protected member variable and methods. Create another class B which extends from A and add few members. Try to**

access a private ,public and protected members of a base class within a class B. observe the result

10. Create two classes, A and B, with default constructors (empty argument lists) that announce themselves. Inherit a new class called C from A, and create a member B inside C. Do not create a constructor for C. Create an object of class C and observe the results.

11. Modify above Exercise so that A and B have constructors with arguments instead of default constructors. Write a constructor for C and perform all initialization within C's constructor.

12. Create an inheritance hierarchy of Wipro: WiproTechnologies, Wipro Infotech , Wipro BPO etc. In the base class, provide methods that are common to all Wipro, and override these in the derived classes to perform different behaviors depending on the specific type of Wipro. Create an array of Wipro, fill it with different specific types of Wipro, and call your base-class methods to see what happens.

13. Create an abstract class with no abstract methods. Verify that you cannot create instances of the class

14. Create a class Student consisting of name and rollno as members. Create a class exam inheriting student. It can have marks for 3 subjects. Create a class result inheriting exam contaning totalmark as member and a function to calculate the totalmark.

15. Write a program to find the cost of constructing a house creating a class called House. Create 2 classes Door

and window. House has instance of door and window. House has member which provide information related to area of construction of door and window. House delegates the responsibility of calculating the cost of door and window to the respective classes

16. **class X { void do1() { } }**
class Y extends X { void do2() { } }

class Chrome {
public static void main(String [] args) {
X x1 = new X();
X x2 = new Y();
Y y1 = new Y();
(Y)X2.do2();
}
}

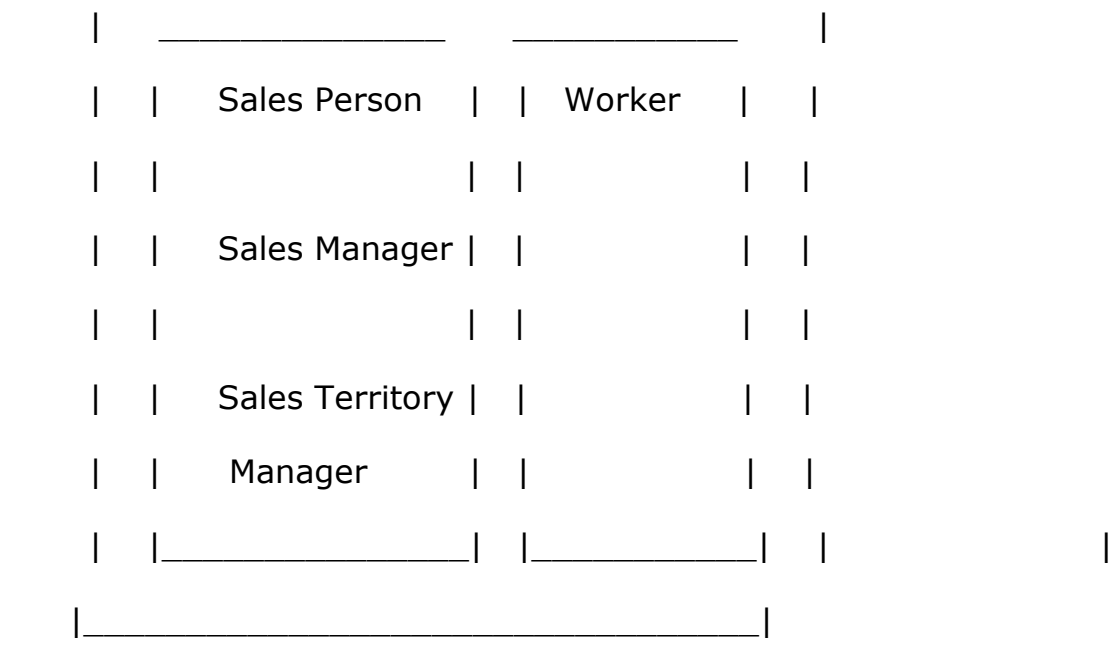
Try to rectify the error and run

17.

Day 3 (interface and packages)

1. Write pay Roll system with following package Structure.

Employee
Sales Prod



2. Write program to calculate Area and volume depending upon type of figure by implementing two interfaces for CalcArea and CalcVolume

Figure	Area	Perimeter	Surface Area	Volume
Circle	pi*r*r	2*pi*r		
Square	a*a	4*a		
Tringle	s = (a+b+c)/2 area = $\sqrt{[s(s-a)(s-b)(s-c)]}$	s1+s2+s3		

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Sphere	pi*r*r	2*pi*r	4*pi*r*r	(4/3)pi*r*r*r
Cuboid	a*a	4*a	6*a*a	a*a*a

3. Write a program in which stack interface with two methods push() and pop() will be implemented by classes "Fixed Stack" and "Dynamic Stack".
4. **Create 3 interfaces each having two methods. Create a new interface extending these 3 interfaces. Add a new method to the interface. Create a class implementing the new interface and also inheriting from class. Write four methods each taking one of the four interfaces as an argument. In main() create a object of your class and pass it to each of these methods.**
5. **Create an interface with 3 methods in a package. Implement this in a class in different package**
6. **Create a class in a package. Write a protected method in it. From outside the package, try to call the method and see the result. Now inherit from your class and call the protected method from inside a method of your derived class**

7. **Create an abstract superclass named four-wheeler and a concrete subclass named car. The superclass should belong to a package called vechicle and the subclass can belong to the default package (meaning it isn't put into a package explicitly). Make the superclass public and give the subclass default access. Compile these 2 files successfully**

Day 4 (exception handling)

1. **Create a class with a method throwing an object of class IOException. Neither catch this object nor use throws clause. Test and see the result**
2. **Try the following and observe the result. Also try it with a statement throwing some exception in line 1**

```
class sample{
public void mth1()
{
mth2();
System.out.println("caller");
}
public void mth2()
{
try
{
// line 1
return;
}
catch(Exception e){ System.out.println("catch-mth2");}
```

```
finally{System.out.println("finally-mth2");}
}
public static void main(String p[])
{
sample s=new sample();
s.mth1();
}
}
```

3. try the above by replacing the return statement inside try block by System.exit(0);
4. Create your own exception. In main() create a try-catch clause to exercise your new exception
5. Write a class with a method that throws an exception of the type created in previous exercise. Compile this without catch the exception
6. Write a program to check whether a derived class constructor can catch exception thrown by base class constructor.
7. Write a program such that the user is repeatedly asked for the numerator and the divisor. For each set of data, the program prints out the result or an informative error message if there is a problem (division by zero or poor input data).
    a. The program continues looping, even if there is a problem

b. **Exit the loop when data entered for the numerator start with characters "q" or "Q". Don't print out an error message in this case.**

8. Write a Program to take care of Number Format Exception if user enters values other that integer for calculating average of marks ten students. Do not allow program to terminate but again continue with the program after giving respective message to User.

9. In the same Program write your own Exception classes to take care of Negative values and values out of range (i.e. other than in the range of 0-100) and do not allow program to terminate give the message depending upon the wrong input submitted by the user.

Day 5 (multithreading)

1. Write a Program which will create two threads one to display even and other to display odd numbers from 1to 100

2. Write a program to give synchronized access to multiple thread each with different message to display method which formats the message in the following manner.
   "[------Message------]"

3. Write a program to implement inventory System in which two thread called Producer will add one product in the Inventory and other thread called Consumer will consume product from inventory. Thread should communicate in such a way that, there should be maximum one product and minimum zero products in the inventory.

4. **Write a program which displays digital clock**
5. **Write a program to demonstrate that the thread once started, can never be started again. Try, analyze the result**
6. **Write a class that keeps a running total of all characters passed to it (one at a time) and throws an exception if it is passed a non-alphabetic character.**
7. **Create a simple counting thread. It will count to 100, pausing one second between each number. Also, in keeping with the counting theme, it will output a string every ten numbers.**
8. **Create a class and extend the Thread class.Override the run() method of Thread. This is where the synchronized block of code will go. For our three thread objects to share the same object, we will need to create a constructor that accepts a StringBuffer object in the argument.The synchronized block of code will obtain a lock on the StringBuffer object Within the block, output the StringBuffer 100 times and then increment the letter in the StringBuffer. Finally, in the main() method, create a single StringBuffer object using the letter A, then create three instances of our class and start all three of them.**

Day 6 (utility classes and applets)

1. Write a program to display the life cycle of Applet using Appletviewer.

2. Write a program which accepts String and font type, Font Size to be used for displaying on the Applet from HTML.
3. Write a Program to display String send by one Applet on another using Applet Communication.
4. Write a program which will run Banner "I PROUD TO BE INDIAN" on Applet.
5. Write a Program to display all the awt Components on the frame.
6. **Draw a large asterisk * in the center of the applet by drawing three lines that intersect in the center**
7. **Draw 10 alternating red circles and blue squares in a line across the center of the applet**
8. **Draw 10 complete circles randomly positioned in the applet, with random radii in the range 5 to 25 pixels. Randomly pick each circle's color (use a random int and nested if statements.)**
9. **Write a Program to access command line arguments and convert string arguments into uppercase.**
10. **Sales tax in the City is 5.25%. Write a program that accepts a price on the command line and prints out the appropriate tax and total purchase price.(after proper conversion from string to double)**
11. **Modify the above program to get number of prices, total them, find the sales tax and calculate the total amount.**

12. Write a program which gets a filename as command line argument and change the extension of the file (use lastIndexOf, substring functions)

13. Write a program to get a character from user nad display whether it is a letter (lowercase/uppercase) or digit or space

14. Write a program to convert int to binary, hexadecimal and octal

15. Try to run and understand the code and use instance of operator

```
class A { }
class B extends A {
public static void main (String [] args) {
A myA = new B();
m2(myA);
}
public static void m2(A a) {
if (a instanceof B)
((B)a).doBstuff(); // downcasting an A reference
// to a B reference

}public static void doBstuff() {
System.out.println("'a' refers to a B");
}
}
```

Day 7 (event handling & I/O streams)

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1. Write a Program to display the coordinates of mouse click on the status bar of Applet
2. Write a program to change the background color of frame depending upon the Red, Blue and Green button clicked by the user.
3. Write a program to change the background color of frame depending upon the position of the Red, Blue, Green Scrollbar.
4. Write a Program using MouseAdapter to display the x and y co-ordinates of curser on the status bar of Frame.
5. Write a program to close a frame using anonymous Inner class.
6. **Write an java application which gets year of birth in a textbox and displays age in years in a labelbox. Check for the year of birth whether it is less than 2007 when textbox looses focus. If not, clear the textbox and set the focus in the textbox itself.**
7. **Write a applet program to detect double and triple clicks and display message accordingly in the status bar**
8. **Write a program to count the numbers of characters entered through stdin. The program exits upon entering Ctrl+Z.**
9. **Write a program to count number words in a given string**
10. **Write a program**
    a. **To delete a file**
    b. **To rename a file**
    c. **To display the size of a given file**

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11. **write a program to list all files and directories in a directory given on command line**
12. Write a program to copy an image using byte by byte Copy.
13. Write a program to File Viewer which will print the content of the file on the console
14. Write a File Copy program which will copy the content of source file to destination file char by char
15. Write a Program to copy the file Line by line.
16. Write a program to Write Date object to file and again reading it back from file.

Day 8 (swing)

1. Write a Notepad Application in swing.
2. **Create an application with a JButton which changes its color randomly each time when pressed.**
3. **modify the above program so that button displays how many times it has been clicked on a Jlabel. Include a reset button also**
4. **Create a frame with ten buttons, labeled 0 through 9. To exit the program, the user must click on the correct three buttons in order, something like 6-2-9. If the wrong combination is used, the frame turns red.**
5. **Create a frame with two buttons, called Expand and Shrink. When the Expand button is clicked, the frame**

expands by 10 percent. When the Shrink button is clicked, the frame shrinks by 10 percent.

6. Create a frame with two JtextField and a Jbutton. When the user click on the button text in two textfield should be swaped.
7. Write an application which displays a combobox with items like rectangle, circle, square etc. when the user selects an item form it should display the corresponding shapes
8. Write a swing application with a Jtextbox which accepts only numbers (digit)
9. Design GUI based calculator with simple functions
10. Write a swing application to
    a. Display a Jlabel with icon
    b. Display JButton with multiline caption
11. Display a JFrame in the center of the screen (use Dimension dim = Toolkit.getDefaultToolkit().getScreenSize() to get the size of the screen)
12. Demonstrate how to use the window listener

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