Core java Revision and Study plan(4 days)

Introduction and Basic Chapter

Note: Prepare notes before learn interview questions

Day1:

1. What is java and explain feature of java?
2. Why java is platform independent language?
3. What is byte code and importance of byte code?
4. What is difference between byte code and machine code?
5. What is diff between platform independency and cross platform?
6. What is OOP and explain depth?
7. What are the pillars of OOP?
8. What is diff between semi object oriented and pure object oriented?
9. What is JDK, JRE and JVM?
10. What is diff between JDK JRE and JVM?
11. What is JVM and explain its architecture?
12. What is array and how many ways to declare array in java?
13. What is diff between C array and java array?
14. What is Jagged Array in java?
15. What is anonymous array in java?

Programs for practice?

1. Write program to input two values using command line argument and perform its swapping?
2. Write program to input number using Scanner class and reverse it?
3. Write program to character from keyboard and check character is alphabet digit or special symbols?
4. Write a program to input number and print its table?
5. Write program to input number and check number is perfect or not?
6. Write program to input number and check number is duck or not?
7. Write a program to input number and check number is palindrome or not?
8. Write program to input number and check number is Armstrong or not?
9. Write program to check number is prime or not?
10. Write program to create array of size 5 and display its value?
11. Write program to create array of size 5 and find max value?
12. Write program to create array of size and arrange all values in ascending order?
13. Write program to create array of size 5 and input search key value and search value in array and if value found return its index and return -1
14. Write program to create array of size 10 and find occurrence of every element in array?
15. Write program to create array of size 5 and reverse it

MCQ Questions

Question1 :

```
public class P {
   public static void main(String[] args) {
```

```
        int a = 10, b = 5, c = 1, result;
        result = a-++c-++b;
     //    result = a-(2)-(6)
     //    result = 10-2=8
     //    result = 8-6
     //    result = 2
        System.out.println (result);
   }
}
```

Q2. What will be output of given code?

```
public class Second
{    public static void main(String x1[]) {
        int x = 0, y = 0 , z = 0 ;
        x = (++x + y-- ) * z++;
       System.out.println("X is  "+x);
    }
}
```

Q3. What will be output of given code?

```
class Numbers{
    public static void main(String args[]){
        int a=20, b=10;
        if((a < b) && (b++ < 25)){
            System.out.println("This is any language logic");
        }
        System.out.println(b);
    }
}
```

Q4. What will be output of given code?

```
class IncDec
{  public static void main(String s[])
   {   int a = 1;
       int b = 2;
       int c;
       int d;

      c = ++b;
      d = a++;
      c++;
      System.out.println ("a = " + a);
      System.out.println ("b = " + b);
      System.out.println ("c = " + c);
      System.out.println ("d = " + d);
   }
}
```

Q5. What will be output of given code?

```
package org.techhub;
```

```
public class Demo
{ public static void main(String[] args)
   {  int i, j, k, l = 0;
      k = l++;
      j = ++k;
      i = j++;
      System.out.println("I is  "+i);
   }
}
```

Q6. What will be output of given code?

```
package org.techhub;
class Demo
{ public static void main(String s[])
   { int i = 34.0;
      int j = 7;
      int k = i % j;
     System.out.println("k = " + k );
   }
}
```

Q7. What will be output of given code?

```
package org.techhub;
class Demo{
   public static void main(String args[])
   {
      int var1 = 42;
      int var2 = ~var1;
      System.out.print(var1 + " " + var2);
   }
}
```

Q8. What will be output of given code?

```
package org.techhub;
class Demo {
        public static void main(String args[]) {
                int a = 3;
                int b = 6;
                int c = a | b;
                int d = a & b;
                System.out.println(c + "\t" + d);
        }
}
```

Q9. What will be output of given code?

```
class Demo {
   public static void main(String args[])
   {   byte x = 64;
       int i;
```

```
        byte y;
        i = x << 2;
        y = (byte) (x << 2);
        System.out.print(i + "\t" + y);
    }
}
```

Q10. What will be output of given code?

```
package org.techhub;
class Demo {
    public static void main(String args[])
    {
        int x;
        x = 10;
        x = x >> 1;
        System.out.println(x);
    }
}
```

Q11. What will be output of given code?

Consider the following various array declarations:

```
int [] ar1, arr2[];
int[][] arr3;
int[] arr4[], arr5[];
```

Q12. What will be output of given code?

```
class Rose{
public void sam() {
 int y[] = {4, 2, 8};
 for (int x=2; x<1+3*2-4; x++){
 System.out.print(x+" ");
 for (int j:y) {
     j=j*x-4;
 System.out.print(j+" ");
 }
 }
 }
 public static void main(String[] args) {
 Rose r = new Rose();
 r.sam();
 }
}
```

Q13. What will be output of given code?

```
import java.util.*;
public class MatrixApplication{
    public static void main(String x[])
    {
```

```
        Scanner xyz  = new Scanner(System.in);
         int a[][]=new int[3][];
           a[0]=new int[3];
           a[1]=new int[4];
           a[2]=new int[2];
       System.out.println("Enter the values in matrix");
        for(int i=0; i<a.length; i++)
       {
              for(int j=0; j<a[i].length; j++)
              {    a[i][j]=xyz.nextInt();
              }
       }
       System.out.println("display the matrix");
         for(int i=0; i<a.length; i++)
         {    for(int j=0; j<a[i].length; j++)
                { System.out.printf("%d\t",a[i][j]);
                }
          System.out.printf("\n");
         }
    }
}
```

Interview Question on classes and object and constructor (Day2)

Q1. what is class and why use it?
Q2. How we can reuse class more than one time?
Q3. what is encapsulation and explain encapsulation with real time scenario?
Q4. what is diff instance variable, static variable and local variable?
Q5. what is static keyword and explain static variable, static method?
Q6. Explain any 4 important points related with static and instance variable?
Q7. what is method variable arguments?
Q8. what is array of object and how create array of object in java?
Q9. what is Meta section and why use it?
Q10. is It true static variable not stored in object?
Q11. is it true static variable stored in Meta section?
Q12. is it true instance variable allocate memory after object?
Q13. is it true we cannot declare class as private, static and protected?
Q14. what is nested class?
Q15. What is constructor and why use constructor?
Q16. Explain types of constructors?
Q.17. what is constructor overloading explain with example?
Q18. What is constructor chaining and explain this() constructor?
Q19. What is singleton class and how to create it ?
Q20. What is utility class in java and how to create it?

Practice Program on classes and objects

Q1. Write a program to create class name as Cube with two methods
void setValue(int x): this function accept number as parameter
int getCube(): this function can calculate cube of number and return it.

Q2. Write program to create class name as Factorial with two functions
void setValue(int x): this function accept number as parameter
int getFactorial(): this function can calculate factorial of number and return it.

Q3. Write program to create class name as CheckChar with two functions
void setChar(char ch): this function accept single character as input
boolean checkChar(): this function can check character is alphabet or digit of special symbol if character is alphabet or digit return true if character is digit then return false.

Q3. Write program to create class name as FindMax with two functions
void setArray(int a[]): this function is used for accept array as parameter
int getMax(): this function can find the max value from array and return it.

Q4. Write program to create class name as SortArr with two functions
void setArray(int a[]): this function can accept array as parameter
int [] getSortArray(): this function can perform sorting on array and return sorted array

Q5. Write program to create POJO class name as Employee with id,name and salary attribute and store data in object and retrieve data from object

Q6. Write program to create class name as CheckDuck with parameterized constructor
CheckDuck(int no): this constructor can accept number as parameter
Boolean isDuckNumber(): this function check if number is duck return true otherwise return false.

Q7. Write program to create class name as Area with constructor overloading
Area(float radius): this function can accept radius as input and calculate circle Area
Area(int len,int width): this function can accept len and width as input and calculate area of rectangle

Q8. Write program to create class name as MergeTwoArray with parameterized constructor
MergeTwoArray(int [],int []): this constructor accept two array as parameter
int [] getMergeArray(): this function merge two array in third array and return new merged array

Q9. Write program for write code for singleton class?
Q10. Write code for utility class?

MCQ Questions

Q1. Find the output of given code?

```
public class VarargsExample
{  public static void displayNames(String... names)
    {    for (String mynames:names)
         {
               System.out.print(mynames + " ");
         }
}
public static void main(String args[])
  {
     displayNames("Alex","Richard","John");
   }
}
```

Q2. Find the output of given code?

```
class Ques2 {
int eval(int[]...vars)
{    int sum=0, b, c;
for(b = 0; b<vars.length; b++) {
for(c=0;c<vars[b].length; c++) {
sum += vars[b][c];
}
}
return(sum);
}
public static void main(String args[])
{    Ques2 varargs = new Ques2();
int sum =0;
sum = varargs.eval(new int[]{10,20,30,40}, new int[]{40,50,60});
System.out.println("The sum of the numbers is:" + sum);
}
}
```

Q3. Find the output of given code?

```
class Ques3{
public static void main(String args[]) {
int x = 201;
myMethod(x++);
```

```
System.out.println(x);
}
static void myMethod(int x)
{     x %= 10;
System.out.println(x);
  }
}
```

Question4: Which of the following statements are true based on the use of modifiers?

A. Local variables can be declared either static or transient.
B. The visibility of the local variables cannot be specified.
C. By default the variable is accessible within the same class and subclass of the super class.
D. The visibility of the local variables is default.

Question5. Which of the following are valid declarations of the main () method?

A. static main(String args[]){ } B. public static String main(String args[]) {… }
C. public static void main(String args[]) {….} D. final static void main(String args[]) {….}

Question6. Which of the following is the correct higher to lower order of restrictiveness for access specifies?

A. public> default(within the package)> protected> private
B. private> default(within the package)> protected> public
C. private> protected> default(within the package)> public
D. protected> default(within the package)> private> public

Question7. Find the output of given code?

```
public class Ques9
{   public void myMethod1()
{   static int num1=100;
final int num2=200;
System.out.println("The value of first variable is " + num1);
System.out.println("The value of second variable is " + num2);
}
public void myMethod2()
{    int arr[] = new int[2];
System.out.println(arr[arr.length-1]);
}
public static void main(String args[]) {
new Ques9().myMethod1();
new Ques9().myMethod2();
}
}
```

Q8. Find the output of given code?

```
public class Ques10
{  private static int num1 = 100;
private int num2 = 200;
public static void myMethod1()
{    num1 = 300;
num2 = 400;
System.out.println(num1 + ",” + num2);
}
public static void myMethod2()
{
num1 = 300;
Ques10.num2 = 400;
}
public void myMethod3()
{
num1 = 300;
num2 = 400;
}
public void myMethod4()
{
Ques10.num1 = 300;
num2 = 400;
}
public static void main(String args[])
{
Ques10 q = new Ques10();
q.myMethod1();
}
}
```

Q11. Find the output of given code?

```
public class Ques11 {
public static void main(String args[])
{   Ques11 q = new Ques11();
q.method(30);
byte b = 3;
q.method(b);
}
public void method(Integer i)
{   System.out.print("Integer value is: " + i + “ “);
}
public void method(short s)
{    System.out.print("Short value is: " + s + “ “);
}
```

```
public void method(byte t)
{   System.out.print("Byte value is: " + t + " ");
}
public void method(int num)
{   System.out.print("Int value is: " + num + " ");
}
}
```

Q12. Find the output of given code?

```
public class Ques12
{
public static void main(String args[])
{
Ques12 q = new Ques12();
q.myMethod (10,20);
q.myMethod (new long[]{});
q.myMethod (new int[]{10,20});
}
void myMethod (short s1, short s2)
{
System.out.println ("short");
}
void myMethod (int i1, int i2)
{  System.out.println ("int");
}
void myMethod (int ...args)
{
System.out.println ("intargs");
}
}
```

Q13. Find the output of given code?

```
public class Ques13
{  public static void main(String args[])
{
System.out.println(myMethod(myMethod(new int[] {10,20}),myMethod(10,20)));
}
static int myMethod(int num1, int num2)
{  return 10;
}
static int myMethod(int... args)
{  return 20;
}
}
```

Q14. Find the output of given code?

What will be output of the preceding program?

A. The program will compile successfully and display 10 as output.

B. The program will lead to compile time error as the myMethod with int [], int [] argument is not defined.

C. The program will compile successfully but lead to runtime exception.

D. The program will compile successfully and display 20 as output

Q15. **Which of the following statements are true in the context of the preceding program?**

A. The program will lead to compilation error as a non–static variable cannot be accessed from static context.

B. The program will compile successfully but lead to runtime exception.

C. The program will lead to compile time error as the String variable str is not assigned a value.

D. The program will compile successfully and print 4 as output.

Inheritance , super(),final,abstract,interface practice (Day3 and Day4)

Q1. what is inheritance and why use it?

Q2. explain types of inheritance in java?

Q3. Can we create java program without inheritance?

Q4. Why Object class is parent of every class in java?

Q5. is true if parent contain default constructor, then it is executed before child?

Q6. is true if parent contain parameterized constructor, then programmer must be pass parameter from child?

Q7. what is super() constructor and why use it?

Q8. is it possible super() constructor write on second line of code?

Q9. is it possible super() and this() use at same time?

Q10. is it true super() pass parameter to immediate parent class?

Q11. what is final keyword and explain in depth?

Q12. how we can avoid method overriding in java?

Q13. why use method overriding and explain its benefit?

Q14. is method overriding is beneficial every time?

Q15. what is diff between static and final variable?

Q16. can we use static and final at same time?

Q17. can we override final method in java?

Q18. what is abstract class and abstract method?

Q19. what is abstraction in java and how we can achieve it?

Q20. what is diff between abstraction and encapsulation?

Q21. what is diff between final and abstract method?

Q22. is it true abstract method must be override in child class?

Q23. Can we override constructor?

Q24. can we declare constructor as abstract?

Q25. Can we declare constructor as final?

Q26. Can we declare abstract method as static?
Q27. can we declare abstract method as final?
Q28. Can we declare abstract method as private?
Q29. can we declare abstract method as protected?
Q30. Can we declare method as protected in parent and can override as public?
Q31. can we declare method as protected in parent and override can default?
Q32. can we declare method as public in parent and override as default or protected?
Q33. what is diff between overloading and overriding?
Q34. what is diff between static and final?
Q35. what is diff between static and abstract?
Q36. what is concreate class in java?
Q37. what is adapter class and why use it and how to create it?
Q38. what is interface in java?
Q39. is it true interface variable by default public static final?
Q40. can define method within interface?
Q41. is it true interface is used for achieve 100% abstraction?
Q42. can we declare interface method as protected?
Q43. can we declare interface method as static with reason?
Q44. Can we declare interface method as public?
Q45. can we inherit one interface to another interface using extends keyword?
Q46. Can we implement interface in class?
Q47. how to solve diamond problem using interface?
Q48. how to achieve multiple inheritance using interface?
Q49. what is diff between interface and abstract class?
Q50. Can we override static method?
Q51. what is method hiding in java and explain in detail?
Q52. what is diff between hiding and overriding?
Q53. what is dynamic polymorphism and how we can achieve in java with code?
Q54. What is coupling in java and explain detail?
Q55. What is IS-A relationship and what is HAS-A relationship in java?

Program Practice on inheritance

Q1. Write a program to crate class name as Value with single function name as setValue(int,int) and we have to create three child classes name as Add with function int getAdd() , Mul with function getMul() and Div with function getDiv() and getAdd() function return addition of two value which is inherited from Value class , getMul() function return multiplication of two values which is inherited from Value class and gitDiv() function return division of two values which Is inherited from Value class.

Q2. Write program to create class name Area with methods name as void setRadius(float radius) and void setLengthWidth(int len,int wid) and two child classes name as Circle and Rectangle so you have to define float getCircleArea() method in Circle child class and calculate area of circle and return it

and You have to define getRectArea() method in Rectangle class and calculate area of rectangle and return it

Q3. Write Program create class name as ArrSum with method void setValue(int arr[]) you have to create child class name as GetSum with method int getArrSum() you have to accept array values from ArrSum and calculate its sum and return it

Q4. Write program to Create class name as PersonalInfo with parameterized constructor PersonalInfo(String name, String middlename, String lastname) and you have to create class name as ProfessionalInfo with parameterized constructor like as ProfessionalInfo(int id,String des,int salary,String skillset) and you have to inherit PersonalInfo class in ProfessionalInfo and pass parameter from ProfessionalInfo class to PersonalInfo using super() constructor and you have to define void show() method in ProfessionalInfo and you have to show the all data in show() method.

Q5. Write Program to perform method overriding you have to create class name as ArrParent with method
void setValue(int arr[]): this method can accept array as parameter
void arrangeSeq(): this method can display array as per user input sequence
You have to create two child class name as ArrangeAscendingOrder and you have to inherit ArrParent class in it and override arrangeSeq() method in ArrangeAscendingOrder and sort array and display in ascending order and you have to create one more class name ReverseArray and override arrangeSeq() method from ArrParent and reverse array and display it.

Q6. Write Program to create abstract class name as Value with one abstract and one non abstract method
void setValue(int ,int): this is non abstract method with two parameter
abstract int getResult(): this is abstract method
and you have two child class name as Power and you have to override getResult() method in Power class and calculate power of two values and return it as well as SearchDigit and you have to override getResult() consider first parameter of setValue() is number and second parameter is digit and you have to search digit in number and return it and if digit not found return -1

Q7. Write Program to create class name as ArrAbs with two methods
void setArray(int arr[],int []): this function is used for accept array as parameter
abstract int [] getResultantArray(): this function can return resultant array from different child classes.
You have to create two classes name as InterSection you have to override getResultantArray() method in Intersection and perform intersection of array which we pass in setArray() function and return it as well as you have to create one more class name as Union you have to override getResultantArray() and perform union on two array and return resultant array

Q8. Write program to create interface name as CharOperator with method

void setCharArr(char []): this function is used for accept array as parameter
char [] getArrResult(): this is abstract function and return character array as result.
You have to create two implementer class name as ConvertToUpper and ChangeAlterNateChar you have to implement the CharOperator interface in ConvertToUpper class and override both methods and convert lower case character to upper case and you have to implement the CharOperator in ChangeAlterNateChar and override both methods and convert even position character as Upper and odd position characters in lower.

Q9. Write a program to create Demonstrate code for multiple inheritance using interface.

MCQ Question on inheritance
Question1: what will be the output of given code?

```
 class Base {
    public void show() {
      System.out.println ("Base::show () called");
    }
}
 class Derived extends Base {
    public void show () {
      System.out.println ("Derived::show () called");
    }
}

public class Main {
    public static void main(String[] args) {
       Base b = new Derived();;
       b.show ();
    }
}
```

Options

(A) Derived::show() called

(B) Base::show() called

Question2: what will be the output of given code?

```
class Base {
    final public void show() {
      System.out.println ("Base::show () called");
    }
}
```

```
class Derived extends Base {
   public void show () {
     System.out.println ("Derived::show () called");
   }
}
 class Main {
   public static void main (String[] args) {
      Base b = new Derived ();;
      b.show ();
   }
}
```

Options

(A) Base::show () called
(B) Derived::show () called
(C) Compiler Error
(D) Runtime Error

Question 3: what will be the output of given code?

```
class Base {
   public static void show() {
     System.out.println("Base::show() called");
   }
}
class Derived extends Base {
   public static void show() {
     System.out.println("Derived::show() called");
   }
}
class Main {
   public static void main(String[] args) {
      Base b = new Derived();
      b.show();
   }
}
```

Options

(A) Base::show () called
(B) Derived::show () called
(C) Compiler Error

Question 4: what will be the output of given code?

1) Private methods are final.
2) Protected members are accessible within a package and
   Inherited classes outside the package.
3) Protected methods are final.
4) We cannot override private methods

Options

(A) 1, 2 and 4
(B) Only 1 and 2
(C) 1, 2 and 3
(D) 2, 3 and 4

Question5: what will be the output of given code?

```
class Base {
   public void Print() {
      System.out.println("Base");
   }
}
class Derived extends Base {
   public void Print() {
      System.out.println("Derived");
   }
}
class Main{
   public static void DoPrint( Base o ) {
      o.Print();
   }
   public static void main(String[] args) {
      Base x = new Base();
      Base y = new Derived();
      Derived z = new Derived();
      DoPrint(x);
      DoPrint(y);
      DoPrint(z);
   }
}
```

(A)
Base
Derived
Derived
(B)

Base
Base
Derived
(C)
Base
Derived
Base
(D) Compiler Error

Question 6: what will be the output of given code?

```
class Base {
   public void foo() { System.out.println("Base"); }
}

class Derived extends Base {
   private void foo() { System.out.println("Derived"); }
}

public class Main {
   public static void main(String args[]) {
      Base b = new Derived();
      b.foo();
   }
}
```

Options

(A) Base
(B) Derived
(C) Compiler Error
(D) Runtime Error

Question 7: Imagine you define the My Interface interface as shown in the following code snippet?

```
interface MyInterface {
 //complete the code here
 final int mynum = 70;
}
```

Which of the following options will lead to compilation error?

A. public final void myMethod(); B. protected void myMethod();
C. public void myMethod(); D. private abstract void myMethod()

Question 8: Imagine you write the following lines of code in your program:

```
class QuesSuper
{
 public int mynum=0;
```

```
 public QuesSuper(String str) {
 mynum=10;
 }
}
public class QuesSub extends QuesSuper {
 public QuesSub(String str) {
 mynum=20;
 }
 public static void main(String args[]) {
 QuesSub sub= new QuesSub("Suchita");
 System.out.println(sub.mynum);
 }
}
```

What will be the output after the preceding program is compiled and executed?

A. The program will compile successfully and 20 will be displayed as output.
B. The program will lead to compile time error.
C. The program will compile successfully and 10 will be displayed as output.
D. The program will compile successfully and 0 will be displayed as output.

Question 9: Imagine you want to clear your concept of nested classes and so you create a program containing nested and static classes. Consider that you have created the following program

```
public class Ques43 {
 public static void main(String args[]) {
 TestOuter o = new TestOuter();
 TestOuter.TestInner i = o.new TestInner();
 TestOuter.TestStaticInner inner = new TestOuter.TestStaticInner();
 }
}
class TestOuter {
 static int num1 = 100;
 TestOuter() {
 System.out.print("Welcome to the outer class" + " ");
 }
 class TestInner {
 TestInner() {
 System.out.print(TestOuter.num1 + " ");
 }
 }
 static class TestStaticInner {
 static int staticnum = 200;
 TestStaticInner() {
 System.out.print(staticnum + " ");
```

```
 }
 }
}
```

What will be the output after you compile and execute the preceding program?

A. The program compiles successfully and displays "Welcome to the outer class 100 200" as output.
B. The program compiles successfully and displays "Welcome to the outer class 200 100" as output.
C. The program compiles successfully and displays "Welcome to the outer class 100" as output.
D. The program compiles successfully and displays "Welcome to the outer class 200" as output.

Question 10 : Imagine you are working a Java programmer in the ABC Company and write the following program:

```
public class Ques48
{public static void main(String[] args) {
   Vehicle v = new Car();
    System.out.print(v.getVehicle().getClass().getName() + " ");
   System.out.print(v.getVehicle().getName());
  }
}
class Vehicle {
 public Vehicle getVehicle() {
 return this;
 }
 public String getName() {
 return "Vehicle";
 }
}
class Car extends Vehicle {
 public Vehicle getVehicle() {
 return this;
 }
 public String getName() {
 return "Car";
 }
}
```

What will be the output after you compile and execute the preceding program?

A. The program will lead to compilation errors as the Car class overloads the getVehicle method by changing its return type.
B. The program will compile successfully and display "com.kogent.Car Car" as output.
C. The program will compile successfully but lead to runtime error.
D. The program will lead to compilation error at Vehicle v = new Car();

Exception Handling

Q1. What is exception and why use it?

Q2. Explain exception handling hierarchy?
Q3. Explain benefits of exception handling?
Q4. Explain types of exception in java?
Q5. What is diff between exception and error?
Q6. Explain keyword for exception handling with examples?
Q7. What is diff between catch and finally block?
Q8. What is throws keyword in exception handling and why use it?
Q9. What is throw keyword in exception handling and why use it?
Q10. What is diff between throws and throw keyword?
Q11. Explain any 10 exceptions with example?
Q12. Can we write try without catch block?
Q12. What is try with resource bundle?
Q13. Can we write more than one exception in catch block using pipe operator?
Q14. Can we write try within try block?
Q15. Can we write multiple catch for single try?
Q16. Is it true throw and throws throw exception object at function calling point?
Q17. Is it true throws design for handle checked exception?
Program on exception handling

1. Write a code for handle NullPointerException?
2. Write code for handle ArithmeticException?
3. Write code for handle ArrayIndexOutOfBoundsException?
4. Write code for handle StringIndexOutOfBoundsException?
5. Write code for create user defined excetion?
6. Write code using throws clause?
7. Write code for handle ClassCastException?
8. Write code for handle ClassNotFoundException?

MCQ on Exception Handling?

Question 1: Predict the output of following Java program?

```
class Main {
  public static void main(String args[]) {
    try {
      throw 10;
    }
    catch(int e) {
      System.out.println("Got the  Exception " + e);
    }
 }
}
```

Options

(A) Got the Exception 10
(B) Got the Exception 0
(C) Compiler Error

Question 2: what will be the output of given code?

```
class Test extends Exception {
}
 class Main {
  public static void main (String args[]) {
    try {
      throw new Test();
    }
    catch(Test t) {
      System.out.println("Got the Test Exception");
    }
    finally {
      System.out.println("Inside finally block ");
    }
 }
}
```

Options

(A) Got the Test Exception
Inside finally block

(B) Got the Test Exception

(C) Inside finally block

(D) Compiler Error

Question 3: Output of following Java program?

```
class Main
 { public static void main(String args[]) {
    int x = 0;
    int y = 10;
    int z = y/x;
 }
}
```

Options

(A) Compiler Error
(B) Compiles and runs fine
(C) Compiles fine but throws ArithmeticException exception

Question 4: what will be the output of given code?

```
class Test
{ public static void main (String [] args)
```

```
  {
    try
    {
      int a = 0;
      System.out.println ("a = " + a);
      int b = 20 / a;
      System.out.println ("b = " + b);
    }
    catch(ArithmeticException e) {
      System.out.println ("Divide by zero error");
    }
    finally
    {
      System.out.println ("inside the finally block");
    }
  }
}
```

Options

(A) Compile error
(B) Divide by zero error
(C) a = 0
Divide by zero error
Inside the finally block
(D) a = 0
(E) Inside the finally block

Question 5: what will be the output of given code ?

```
class Test
{
  public static void main(String[] args)
  {
    try
    {
      int a[]= {1, 2, 3, 4};
      for (int i = 1; i <= 4; i++)
      {
        System.out.println ("a[" + i + "]=" + a[i] + "n");
      }
    }

    catch (Exception e)
    {
      System.out.println ("error = " + e);
```

```
      }

      catch (ArrayIndexOutOfBoundsException e)
      {
         System.out.println ("ArrayIndexOutOfBoundsException");
      }
   }
}
```

Options

(A) Compiler error
(B) Run time error
(C) ArrayIndexOutOfBoundsException
(D) Error Code is printed
(E) Array is printed

Wrapper classes Interview Question

Q1. What is wrapper classes in java and why use it?
Q2. Explain type casting and its type?
Q3. What is implicit type casting and explicit type casting?
Q4. Explain hierarchy of wrapper classes in java?
Q5. Explain Number and class and its child classes with its method?
Q6. What is autoboxing and auto unboxing in wrapper classes?
Q7. Explain use of xxxValue() method of Number class with example?
Q8. Explain valueOf() method of Wrapper classes?
Q9. What is parseXXX() method of Wrapper classes?
Q10. what is String in java explain in depth?
Q11. What is meaning of immutable in java?
Q12. How many ways to create string in java?
Q13. What is diff between string creation using " " and using a new keyword?
Q14. What is string constant pool ?
Q15. Explain any 4 constructor of string class constructor?
Q16. Explain charAt(),length(),indexOf(),substring(),split(),trim(),
concat(),toUpperCase(),toLowerCase() methods with its syntax, and code examples?
Q17. State the difference between String in C and String in Java?
Q18. Can we use string in switch case as choice?
Q19. Is String thread safe in java?
Q20. What is StringBuffer and StringBuilder in java?
Q21. Can we use StringBuffer and StringBuilder using initialization technique?

Q22. What is diff between String ,StringBuffer and StringBuilder in java?
Q23. Explain append(),delete() and insert() method of String in java?
Q24. What does the string intern() method do?

Program on String in java
Q1. WAP to input string and convert lower case string to upper case without using toUpperCase() method?
Q2. WAP to input string and reverse the string without using any inbuilt function?
Q3. WAP to input two strings and compare then without using equals() or compareTo() method ?
Q4. WAP to input string and separate digit from string and calculate its sum?
Example: abc123mno456;
Output:1+2+3+4+5+6 =15
Q5. WAP to input string and count the words from a string using split() method?
Q6. WAP to input string and input second string and search second string in first input string using indexOf() method?

Example: First String: Good Morning India
Second string: Morning
Output: String found

Q7. WAP to input string and remove the white spaces from a string?
Q8. WAP to input string and incrypt like as?
Example: abcmnoabc
Output: a2b2c2m1n1c1
Q9. WAP to input string and reverse word from a string?
Example: good morning india
Output: doog gninrom aidni
Q10 Write a Java program to check whether a given string ends with another string.

MCQ of string handling

```
class MNR
{
  void method1(String st , int x)
  {    st = new String("bye");
       x = x+1;
  }
 public static void main(String s[])
 {     String str1 = "hi";
       String str2 = "hi";
       int a = 1;
       new MNR().method1(str1, 10);
       new MNR().method1(str2, 20);
      System.out.println(str1 + " " + str2 + " " + a);
  }
```

```
}
MCQ2
class Ques_64
{ public static void main(String s[])
 {   String str1 = "abc";
    String str2 = new String (str1);
    String str3 = new String ("abc");
    String str4 = new String ("Abc");
    System.out.print((str1 == str3) + " ");
    System.out.print(str4.equalsIgnoreCase(str1) + " ");
    System.out.print((str2 == str3) + " ");
    System.out.print(str2 == str4);
  }
}
```

MCQ3

```
class Ques_66 {
 public static void main(String args[])
{   if(args.length == 1 | args[1].equals("testing"))
      {
       System.out.println("testing");
      }
    else {
     System.out.println(args[0]);
     }
 }
}
```

MCQ4

```
class Test {
 public void sendstring(String s1, StringBuffer s2)
 {    s1 = s1+s2.toString();
      s2.append(s1);
      s1 = null;
      s2 = null;
 }
 public static void main(String [] args)
{   String str = "AAA";
    StringBuffer sbr = new StringBuffer("BBB");
    new Test().sendstring(str, sbr);
    System.out.print("str=" + str + " ");
    System.out.print("sbr=" +sbr);
 }
}
MCQ5
public class Switchtest
```

```
{  public static void main(String args[]) {
   String str;
    String s;
    String s1 = new String("i");
    String s2 = new String("j");
    String s3 = new String("k");
     str = s2;
    s2 = null;//1
     str = s1 + s2 + s3;//2
     s1 = null;//3
     str = null;//4
     s3 = null;//6
 }
}
```

MCQ6

```
class Ques97 {
 public static void main(String args[]) {
 String str1 , str2 , str3;
 str3 = new String("jim");
 str1 = new String("jack");
 str2 = str1 ;
 str1 = new String("jill");
 str3 = str2;
 System.out.println(str3);
 }
}
```

MCQ7

```
public class StrEqual {
   public static void main(String[] args) {
      String s1 = "hello";
      String s2 = new String("hello");
      String s3 = "hello";
      if (s1 == s2) {
         System.out.println("s1 and s2 equal");
      } else {
         System.out.println("s1 and s2 not equal");
      }
      if (s1 == s3) {
         System.out.println("s1 and s3 equal");
      } else {
         System.out.println("s1 and s3 not equal");
      }
   }
}
```

MCQ8

```
public class Test {
   public static void main(String[] args) {
      String str = null;
      System.out.println(str.valueOf(10));
   }
}
```

MCQ9

```
public class Test {
   public static void main(String[] args) {
      String s = new String("5");
      System.out.println(1 + 10 + s + 1 + 10);
   }
}
```

MCQ10

```
public class Test {
   public static void main(String[] args) {
      String str = null;
      switch (str) { // #1
         case "null":
            System.out.println("null string"); // #2
            break;
      }
   }
}
```

Threading Interview Question

Q1. What is thread in java?
Q2. What is multi-threading in java?
Q3. What is benefit of multi-threading?
Q4. What is process?
Q5. What is diff between process and thread?
Q6. How many ways to create thread in java explain with example?
Q7. How to create thread in java using Thread class?
Q8. Explain Thread class all methods?
Q9. Is it true Runnable contain run() method?
Q10. Is it true Runnable interface is implemented by Thread class?
Q11. Is it true Runnable is marker interface ?
Q12. Explain life cycle of thread?
Q13. Explain isAlive (), join(),start(),run(),sleep(),stop(),yield(),setPriority(),getPriority(),wait(),notify() and notifyAll() methods?
Q14. What is diff between wait() and sleep () method?
Q15. What is synchronization and asynchronization in java?

Q16. What is thread priority in java and explain all types of thread priority?
Q17. What is daemon thread in java?
Q18. Can we create user thread as daemon thread?
Q19. Why we need to implement thread using a Runnable interface?
Q20 Write code for creating thread using Runnable interface?

Program on Multithreading using JAVA?

1. WAP to create thread using Thread class and display value from 1 to 10 with delay 10000 mili seconds?
2. WAP to create two threads name Even and Odd and Even thread print even values between 1 to 10 and Odd thread print odd values between 1 to 10 and use join() methods as well as perform this code using synchronization technique also.
3. WAP to print the current working thread name and its priority?
4. WAP to create thread using Runnable interface

MCQ on Multi-threading in JAVA?

1. What is multithreaded programming?
a) It's a process in which two different processes run simultaneously
b) It's a process in which two or more parts of same process run simultaneously
c) It's a process in which many different process are able to access same information
d) It's a process in which a single process can access information from many sources
2. Which of these are types of multitasking?
a) Process based
b) Thread based
c) Process and Thread based
d) none of the mentioned
3. Thread priority in Java is?
a) Integer
b) Float
c) double
d) long
4. What will happen if two thread of the same priority are called to be processed simultaneously?
a) Anyone will be executed first lexographically
b) both of them will be executed simultaneously
c) None of them will be executed
d) It is dependent on the operating system
5. Which of these statements is incorrect?
a) By multithreading CPU idle time is minimized, and we can take maximum use of it
b) By multitasking CPU idle time is minimized, and we can take maximum use of it
c) Two thread in Java can have the same priority
d) A thread can exist only in two states, running and blocked
6. What will be the output of the following Java code?

```
class multithreaded_programing
   {   public static void main(String args[])
      {  Thread t = Thread.currentThread();
         System.out.println(t);
      }
   }
```

a) Thread[5,main]
b) Thread[main,5]
c) Thread[main,0]
d) Thread[main,5,main]

7. What is the priority of the thread in the following Java Program?

```
class multithreaded_programing
   {  public static void main(String args[])
      {  Thread t = Thread.currentThread();
         System.out.println(t);
      }
   }
```

a) 4
b) 5
c) 0
d) 1

8. What is the name of the thread in the following Java Program?

```
class multithreaded_programing
   {   public static void main(String args[])
      {  Thread t = Thread.currentThread();
         System.out.println(t);
      }
   }
```

a) main
b) Thread
c) System
d) None of the mentioned

9.What requires less resources?

a) Thread
b) Process
c) Thread and Process
d) Neither Thread nor Process

10. What does not prevent JVM from terminating?
a) Process
b) Daemon Thread
c) User Thread
d) JVM Thread

11. What decides thread priority?
a) Process
b) Process scheduler
c) Thread
d) Thread scheduler
11. Deadlock is a situation when thread is waiting for other thread to release acquired object.
a) True
b) False
12. What is true about threading?
a) run() method calls start() method and runs the code
b) run() method creates new thread
c) run() method can be called directly without start() method being called
d) start() method creates new thread and calls code written in run() method
13. Which of the following is a correct constructor for thread?
a) Thread(Runnable a, String str)
b) Thread(int priority)
c) Thread(Runnable a, int priority)
d) Thread(Runnable a, ThreadGroup t)
14. Which of the following will ensure the thread will be in running state?
a) yield()
b) notify()
c) wait()
d) Thread.killThread()
15. What is the default relation b/w Thread & Runnable?
A. Thread extends Runnable
B. Thread implements Runnable
C. They are not related
D. None of these

16. What is the valid range of priority of a thread in Java multi-threading?
A. 1 to 10
B. 0 to 10
C. 0 to 9
D. 1 to 9

17. Which is the minimum priority of the Thread?
A. Thread.LOW_PRIORITY
B. Thread.MIN_PRIORITY
C. Thread.NORM_PRIORITY
D. Thread.MINIMUM_PRIORITY

18. What is the value of Thread.NORM_PRIORITY?
A. 1
B. 5

C. 6
D. 9
19. Which of these are types of multitasking?
A. Process based
B. Thread based
C. Process and Thread based
D. None of the mentioned

20. We can create thread in java by
A. implementing Thread
B. extending Thread
C. extending Runnable
D. both b & c

21. The tasks or job that thread needs to perform is written inside
A. static block
B. inner class
C. Both A & B
D. run()

22. Which of these method waits for the thread to terminate?
A. join()
B. stop()
C. sleep()
D. isAlive()

23. Which of these method is used to explicitly set the priority of a thread?
A. set()
B. make()
C. setPriority()
D. makePriority()

24. Which of the following method is not used to suspend the execution of a thread?
A. sleep()
B. wait()
C. yield()
D. join()

25. What will happen if two thread of the same priority are called to be processed simultaneously?
A. Anyone will be executed first lexographically
B. Both of them will be executed simultaneously
C. None of them will be executed
D. It is dependent on the operating system

26. What does not prevent JVM from terminating?
A. Process
B. User Thread
C. JVM Thread
D. Daemon Thread

27. What is the priority of the thread in the following Java Program?

```
class multithreaded_programing
{
public static void main(String args[])
{
Thread t = Thread.currentThread();
System.out.println(t);
}
}
```

A. 0
B. 1
C. 4
D. 5

28. Assume the following method is properly synchronized and called from a thread A on an object B:
wait(2000);
After calling this method, when will the thread A become a candidate to get another turn at the CPU?
A. Two seconds after thread A is notified
B. Two seconds after lock B is released
C. After thread A is notified or after two seconds.
D. After the lock on B is released or after two seconds.

Ans: C
29. Which function of pre defined class Thread is used to check weather current thread being checked is still running?
A. Join()
B. Alive()
C. isAlive()
D. isRunning()
Ans: C

30. What is true about time slicing?
A. Time slicing allocates more resources to thread
B. Time slicing depends on its implementation in OS
C. Time slicing is OS service that allocates CPU time to available runnable thread

D. Time slicing is the process to divide the available CPU time to available runnable thread
Ans: D

IOStreams

Q1. what is streams in java and why use it?
Q2. how to many ways to work with file in java?
Q3. Explain File class from java.io package?
Q4. Explain how to get all drive names, total space of drive, free space of drive etc?
Q5. Explain Hierarchy of OutputStream class?
Q6. Explain Hierarchy of Writer class?
Q7. Explain Methods of Writer class?
Q8. Explain Methods of OutputStream class?
Q9. Explain FileWriter class with its constructor and write code for storing data in .txt file?
Q10. Explain BufferedWriter class with example?
Q11. what is diff between FileWriter and BufferedWriter class?
Q12. Explain FileReader and BufferedReader with example?
Q13. Explain ObjectOutputStream class?
Q14. Explain ObjectInputStream class?
Q15. what is Serialization and Deserialization in JAVA?
Q16. Write code for serialization and deserialization in java?
Q17. Write code for reading .csv files in java?

Practice program on File Handling in JAVA?

Q1. Write a program to print all drives from your system and with its total space and free space?
Q2. Write program to create folder using File class and if folder is already present then show message folder is present?
Q3. Write program to create file using File class and if file is present then show message file is exist and if file path is not found then handle exception at run time?

Q4. Read all folders from Drive d: and display it?
Q5. Read all files from D drive?
Q6. Create file using a BufferedWriter class and store string data in it?
Q7. WAP to read file using a BufferedReader class and display it?
Q8. WAP to read file using BufferedReader and count its number of word in file, count number of character in file and count vowels and consent from file?
Q9. WAP to read file using a BufferedReader and reverse the every word from file and store in another file?
Q10. WAP to read file using BufferedReader class and find the words whose ending with ing word and store in another file?

Q11. WAP to copy the image from D: drive and paste it on E drive?

MCQ Question on File Handling?

Q1. Which of this exception is thrown in cases when the file specified for writing is not found?
a) IOException
b) FileException
c) FileNotFoundException
d) FileInputException
Ans :C

Q2. Which of these methods are used to read in from file?
a) get()
b) read()
c) scan()
d) readFileInput()
Ans : b

Q3. Which of these values is returned by read() method is end of file (EOF) is encountered?
a) 0
b) 1
c) -1
d) Null
Ans: c

Q4. Which of these exception is thrown by close() and read() methods?
a) IOException
b) FileException
c) FileNotFoundException
d) FileInputOutputException
Ans: a

Q5. Which of these methods is used to write() into a file?
a) put ()
b) putFile()
c) write()
d) writeFile()

Q6. What will be the output of the following Java program?

```
import java.io.*;
class filesinputoutput
{
   public static void main (String args[])
   {  InputStream obj = new FileInputStream ("inputoutput.java");
      System.out.print (obj.available ());
   }
}
```

a) true
b) false
c) prints number of bytes in file
d) prints number of characters in the file
Ans: c

Q7. What will be the output of the following Java program?

```
import java.io.*;
   public class filesinputoutput
```

```
{
        public static void main(String[] args)
   {
          String obj  = "abc";
     byte b[] = obj.getBytes();
     ByteArrayInputStream obj1 = new ByteArrayInputStream(b);
     for (int i = 0; i < 2; ++ i)
     {
        int c;
        while((c = obj1.read()) != -1)
        {
          if(i == 0)
           {
             System.out.print(Character.toUpperCase((char)c));
              obj2.write(1);
          }
        }
        System.out.print(obj2);
     }
   }
}
```

a) AaBaCa
b) ABCaaa
c) AaaBaaCaa
d) AaBaaCaaa
Ans: d

Q8. What will be the output of the following Java program?

```
import java.io.*;
class Chararrayinput
{ public static void main(String[] args)
   {  String obj  = "abcdef";
      int length = obj.length();
      char c[] = new char[length];
      obj.getChars(0, length, c, 0);
      CharArrayReader input1 = new CharArrayReader(c);
      CharArrayReader input2 = new CharArrayReader(c, 0, 3);
      int i;
      try
      {
        while((i = input2.read()) != -1)
         {
            System.out.print((char)i);
         }
          }
      catch (IOException e)
      {
```

```
            e.printStackTrace();
              }
           }
   }
```

a) abc
b) abcd
c) abcde
d) abcdef
Ans: a

Q9. What will be the output of the following Java program?

```
import java.io.*;
   class Chararrayinput
   {
      public static void main(String[] args)
      {
            String obj  = "abcdefgh";
         int length = obj.length();
         char c[] = new char[length];
         obj.getChars(0, length, c, 0);
         CharArrayReader input1 = new CharArrayReader(c);
         CharArrayReader input2 = new CharArrayReader(c, 1, 4);
         int i;
         int j;
         try
         {
                  while((i = input1.read()) == (j = input2.read()))
           {
              System.out.print((char)i);
           }
             }
         catch (IOException e)
         {
            e.printStackTrace();
              }
          }
   }
```

a) abc
b) abcd
c) abcde
d) none of the mentioned

Ans: d

Q10. Which method is used to write an array of byte to the current output stream?

A. public void write(int)throws IOException
B. public void write(byte[])throws IOException
C. public void flush()throws IOException
D. public void close()throws IOException
Ans: B

Q11. Which of this class is not a member class of java.io package?
A. File
B. StringReader
C. Writer
D. String
Ans: D

Collection Framework

Q1. What is Collection and why use Collection Framework explain with 5 reason?
Q2. What are benefit of Collection over array?
Q3. Explain Collection Hierarchy?
Q4. Explain Iterable interface in java with its method?
Q5. What is Collection interface and explain all methods of Collection interface?
Q6. Explain add() method, Boolean contain() method,indexOf() method,size(),Boolean isEmpty(),remove(),iterator() method etc
Q7. Explain types of Collection like as List,Set and Queue interface?
Q8. What is diff between List an Set interface?
Q9. What is diff between List and Queue interface?
Q10. Explain all implementer classes of Collection framework?
Q11. Explain Vector class with its constructor?
Q12. Explain any 5 important points of Vector class?
Q12. Is it true Vector is synchronized collection and explain its reason?
Q13. Is it true vector is legacy collection?
Q14. What is legacy collection in java?
Q15. What is default capacity of Vector?
Q16. Is it true Vector occupy double memory than its current capacity?
Q17. Explain logic of Vector double capacity increment?
Q18. What is diff between Vector and ArrayList?
Q19. What is default capacity of Vector and ArrayList collection?
Q20. How ArrayList increase its capacity when capacity cross?
Q21. What is diff between LinkedList and ArrayList?
Q22. What is time complexity of LinkedList?
Q23. What is time complexity of ArrayList?
Q24. Who is better for element deletion or updation between LinkedList and ArrayList?
Q25. Who is better for data fetching or data retrieval between LinkedList and ArrayList?
Q26. What is threads hold value of Vector?
Q27. Explain stack in depth?

Q28. What is HashSet Collection in java?
Q29. What is LinkedHashSet in java?
Q30. What is diff between HashSet and LinkedHashSet in java?
Q31. How many ways to fetch data from Collection?
Q32. Explain Iterator in depth with example?
Q33. Explain ListIterator in depth with example?
Q34. Explain diff between Iterator and ListIterator?
Q35. Explain Enumeration interface with example?
Q36. What is diff between Enumeration and Iterator?
Q37. How to remove duplicated data from List Collection?
Q38. What is enhance for loop and how to fetch data from collection using Enhance for loop?
Q39. What meaning of TreeSet and explain with example?
Q40. How to travel TreeSet in descending order?

Program for Practice?

Q1. WAP to create Vector and store 5 values in it and fetch it using Iterator, ListIterator, Enumeration and enhance for loop?
Q2. WAP to create Vector and store 5 values in it and arrange all values in ascending order without using Collections.sort() method?
Q3. WAP to create Vector and store 5 values in it and find max and min value from collection without using any inbuilt method?
Q4. WAP to create ArrayList and store 10 values in it and find occurrence of every value in ArrayList?
Q5. WAP to create LinkedList and store 10 values in it and search particular value from LinkedList?
Q6.WAP to create ArrayList and store 5 employee objects in it and display it?
Q7. WAP to create ArrayList and store 5 player detail in it with id,name and run and search player record using its id.
Q8. WAP to create HashSet and store 10 value in it and display it
Q9. WAP to create LinkedHashSet and store 5 employee data in it and display it ?
Q10. WAP to create TreeSet and store 10 values in it and display it?

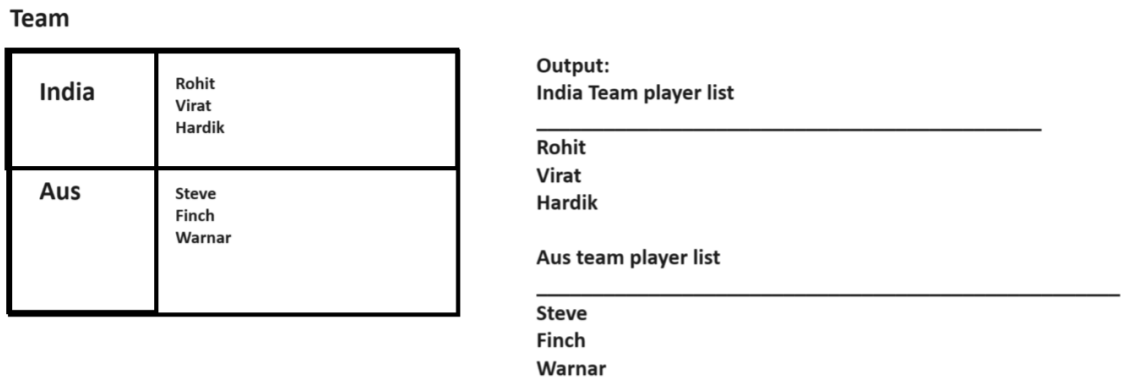
Interview Question on Map interface in java?

Q1. What is Map?
Q2. Explain Hierarchy of Map interface?
Q3. Explain any 8 methods of Map interface?
Q4. Explain HashMap in depth?
Q5. Explain LinkedHashMap in depth?
Q6. What is diff between HashMap and LinkedHashMap interface?
Q7. What is NavigableMap interface?
Q8. What default load factory of HashMap in java?
Q9. Explain internal working of HashMap?
Q10. Explain Map.Entry in java?

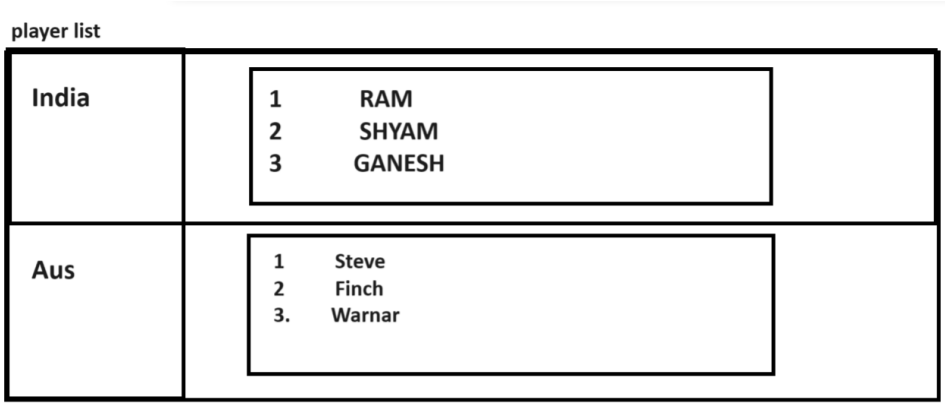
Q12. Explain TreeMap with example?

Practice program using Map

1. WAP to create HashMap and store 5 values in it and display it using entrySet() method?
2. WAP to create LinkedHashMap and store 5 values in it and display it?
3. WAP to manage the map as per given diagram means you have to create LinkedHashMap where you have to store country name as key and number of player as value



4. WAP to manage the map as per given diagram means you have to manage Map within Map mention country name as key and player id and player name as value shown in following diagram



Output

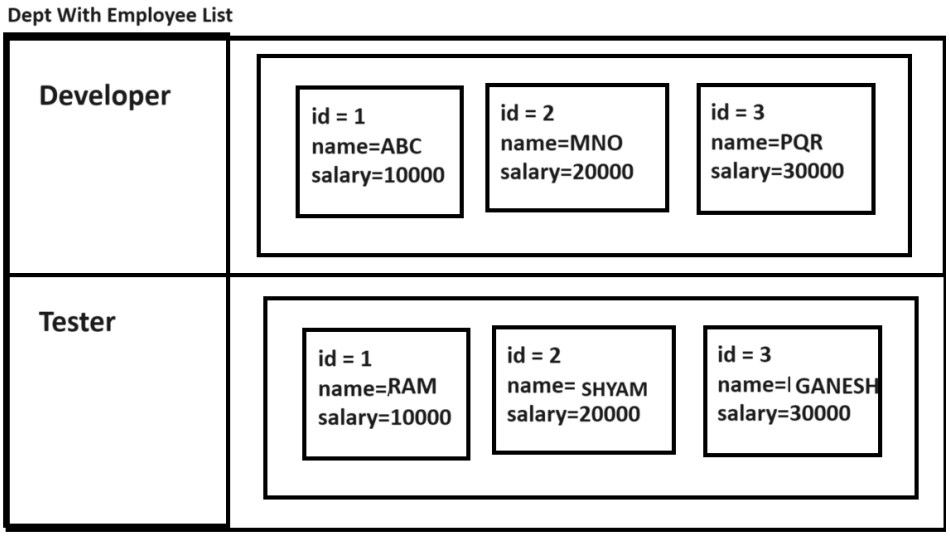
India team player list

ID	Name
1	RAM
2	SHYAM
3	GANESH

Aus team player list

ID	Name
1	Steve
2	Finch
3	Warnar

5. WAP to create Map mark employee Dept name as key and Employee details as Values means single dept contain multiple employees and store 2 dept and every dept contain 3 employee and display its data



Output of above program look like as

Employee List from DEVELOPER

ID	Name	Salary
1	ABC	10000
2	MNO	20000
3	PQR	30000

Employee List from TESTER

1	RAM	10000
2	SHYAM	20000
3	GANESH	30000

6. WAP to create array of size 10 and store value in it and find the occurrence of every element using LinkedHashMap
7. WAP to create input string and split its word and find the repetitive word in string using LinkedHashMap
8. WAP to input string and find occurrence of every character using LinkedHashMap?

MCQ Question on Map Collection

1. Which of these object stores association between keys and values?

a) Hash table

b) Map

c) Array

d) String

2. Which of these classes provide implementation of map interface?

a) ArrayList

b) HashMap
c) LinkedList
d) DynamicList

3. Which of these method is used to remove all keys/values pair from the invoking map?

a) delete()
b) remove()
c) clear()
d) removeAll()

4. Which of these method Map class is used to obtain an element in the map having specified key?

a) search()
b) get()
c) set()
d) look()

5. Which of these methods can be used to obtain set of all keys in a map?

a) getAll()
b) getKeys()
c) keyall()
d) keySet()

6. Which of these method is used add an element and corresponding key to a map?

a) put()
b) set()
c) redo()
d) add()

7. What will be the output of the following Java program? import java.util.*;

```
class Maps
{  public static void main(String args[]) {
        HashMap obj = new HashMap();
        obj.put("A", new Integer(1));
        obj.put("B", new Integer(2));
        obj.put("C", new Integer(3));
        System.out.println(obj);
    }
}
```

a) {A 1, B 1, C 1}
b) {A, B, C}
c) {A-1, B-1, C-1}
d) {A=1, B=2, C=3}

8. What will be the output of the following Java program?

```
import java.util.*;
class Maps
{ public static void main(String args[]) {
        HashMap obj = new HashMap();
        obj.put("A", new Integer(1));
        obj.put("B", new Integer(2));
```

```
        obj.put("C", new Integer(3));
        System.out.println(obj.keySet());
      }
   }
```

a) [A, B, C]
b) {A, B, C}
c) {1, 2, 3}
d) [1, 2, 3]

9. What will be the output of the following Java program?

```
import java.util.*;
   class Maps
   {
      public static void main(String args[])
      {
         HashMap obj = new HashMap();
         obj.put("A", new Integer(1));
         obj.put("B", new Integer(2));
         obj.put("C", new Integer(3));
         System.out.println(obj.get("B"));
      }
   }
```

a) 1
b) 2
c) 3
d) null

10. What will be the output of the following Java program?

```
import java.util.*;
   class Maps
   {   public static void main(String args[])
      {   TreeMap obj = new TreeMap();
         obj.put("A", new Integer(1));
         obj.put("B", new Integer(2));
         obj.put("C", new Integer(3));
         System.out.println(obj.entrySet());
      }
   }
```

a) [A, B, C]
b) [1, 2, 3]
c) {A=1, B=2, C=3}
d) [A=1, B=2, C=3]

11. what will be output of given code?

```
import java.util.*;
import java.util.Map.*;
public class Participate {
```

```
public static void main(String args[]) {
    HashMap participant = new HashMap();
    participant.put(1 + 1, "Samantha");
    participant.put(0 + 1, "Kiran");
    participant.put(2 + 1, "Anushka");
    Set set = participant.entrySet();
    Iterator itr = set.iterator();
    while (itr.hasNext()) {
        Map.Entry m = (Entry) itr.next();
        System.out.print(m.getKey() + " " + m.getValue() + ", ");
    }
    System.out.println();
    itr = set.iterator();
    while (itr.hasNext()) {
        Map.Entry m = (Map.Entry) itr.next();
        System.out.print(m.getKey() + " " + m.getValue() + ", ");
    }
}
```

Q12. Write a program to find keys with common values in the given maps.

Input (Map, Map)	Output (Set)
[A=>Apple, B=>Ball, C=>Cat, G=>Gun, I=>Ice, K=>Kite, M=>Mat], [A=>Ant, B=>Ball, C=>Cat, G=>Gun, I=>Ink, M=>Moon]	**[B, C, G]**
[A=>Apple, B=>Ball, C=>Cat, G=>Gun, I=>Ice, K=>Kite, M=>Mat], [A=>Apple, B=>Ball, C=>Cat, G=>Gun, I=>Ice, K=>Kite, M=>Mat]	**[A, B, C, G, I, K, M]**
[A=>Apple, B=>Ball, C=>Cat, G=>Gun, I=>Ice, K=>Kite, M=>Mat], [A=>Apple, B=>Box, C=>Cat, I=>Ink]	**[A, C]**
[A=>Apple, C=>Cat,	**[]**

I=>Ice, M=>Mat], [B=>Ball, G=>Gun, K=>Kite, N=>Net]	

```
import java.util.HashMap;
import java.util.HashSet;
import java.util.Map;
import java.util.Set;
class FindKeysWithCommonValues
{
   public static void main(String s[])
   {
      Map<String, String> map1 = new HashMap<String, String>();
      map1.put("A", "Apple");
      map1.put("B", "Ball");
      map1.put("C", "Cat");
      map1.put("G", "Gun");
      map1.put("I", "Ice");
      map1.put("K", "Kite");
      map1.put("M", "Mat");
      Map<String, String> map2 = new HashMap<String, String>();
      map2.put("A", "Ant");
      map2.put("B", "Ball");
      map2.put("C", "Cat");
      map2.put("G", "Gun");
      map2.put("I", "Ink");
      map2.put("M", "Moon");
      System.out.println("The set of keys with common values are
" + findKeysWithCommonValues(map1, map2));

   }
public static Set<String> findKeysWithCommonValues(Map<String, String> map1, Map<String,
String> map2)
 {  Write a code here to find keys with common values.
 }
}
```

Q13. **Write a program to find common values in the given maps?**

Input (Map, Map)	Output (Set)
[A=>Apple, B=>Ball, C=>Cat, G=>Gun, I=>Ice, K=>Kite, M=>Mat], [A=>Ant, B=>Ball, C=>Cat, G=>Gun, I=>Ink,	[Ball, Cat, Gun]

M=>Moon]	
[A=>Apple, B=>Ball, C=>Cat, G=>Gun, I=>Ice, K=>Kite, M=>Mat], [A=>Apple, B=>Ball, C=>Cat, G=>Gun, I=>Ice, K=>Kite, M=>Mat]	[Apple, Ball, Cat, Gun, Ice, Kite, Mat]
[A=>Apple, B=>Ball, C=>Cat, G=>Gun, I=>Ice, K=>Kite, M=>Mat], [A=>Apple, Z=>Ball, K=>Cat, I=>Ink]	[Apple, Ball, Cat]
[A=>Apple, C=>Cat, I=>Ice, M=>Mat], [B=>Ball, G=>Gun, K=>Kite, N=>Ice]	[Ice]
[A=>Ball, B=>Ant, C=>Gun, G=>Cat, I=>Kite, K=>Ice, M=>Mat], [A=>Gun, B=>Ball, C=>Cat, G=>Gun, I=>Ice, M=>Moon]	[Gun, Ball, Cat, Ice]

```
import java.util.HashMap;
import java.util.HashSet;
import java.util.Map;
import java.util.Set;
class FindCommonValuesInMaps
{
   public static void main(String s[])
   {
      Map<String, String> map1 = new HashMap<String, String>();
      map1.put("A", "Apple");
      map1.put("B", "Ball");
      map1.put("C", "Cat");
      map1.put("G", "Gun");
      map1.put("I", "Ice");
      map1.put("K", "Kite");
      map1.put("M", "Mat");
      Map<String, String> map2 = new HashMap<String, String>();
```

```
        map2.put("A", "Ant");
        map2.put("B", "Ball");
        map2.put("C", "Cat");
        map2.put("G", "Gun");
        map2.put("I", "Ink");
        map2.put("M", "Moon");
        System.out.println("The set of keys with common values are
" + findCommonValues(map1, map2));
    }
public static Set<String> findCommonValues(Map<String, String> map1, Map<String, String> map2)
   { Write a code here to find the common values in the given maps
  }

}
```

Q14. **Write a program to identify those keys which are present only in the first map?**

Input (Map, Map)	Output (Set)
[A=>Apple, B=>Ball, C=>Cat, G=>Gun, I=>Ice, K=>Kite, M=>Mat], [B=>Ball, C=>Cat, I=>Ink, M=>Moon]	**[A, G, K]**
[A=>Apple, B=>Ball, C=>Cat, G=>Gun, I=>Ice, K=>Kite, M=>Mat], [A=>Ant, B=>Box, C=>Cat, G=>Girl, I=>Ink]	**[K, M]**
[A=>Apple, B=>Ball, C=>Cat, G=>Gun, I=>Ice, K=>Kite, M=>Mat], [A=>Apple, B=>Ball, C=>Cat, G=>Gun, I=>Ice, K=>Kite, M=>Mat]	**[]**
[A=>Apple, B=>Ball, C=>Cat], [G=>Gun, I=>Ice, K=>Kite, M=>Mat]	**[A, B, C]**
[B=>Ball, G=>Gun, K=>Kite], [A=>Apple,	**[]**

B=>Ball, C=>Cat, G=>Gun, I=>Ice, K=>Kite, M=>Mat]	

```
import java.util.*;
class IdentifyFirstMapOnlyKeys
{
   public static void main(String s[])
   {
      Map<String, String> map1 = new HashMap<String, String>();
      map1.put("A", "Apple");
      map1.put("B", "Ball");
      map1.put("C", "Cat");
      map1.put("G", "Gun");
      map1.put("I", "Ice");
      map1.put("K", "Kite");
      map1.put("M", "Mat");
      Map<String, String> map2 = new HashMap<String, String>();
      map2.put("B", "Ball");
      map2.put("C", "Cat");
      map2.put("I", "Ink");
      map2.put("M", "Moon");
      System.out.println("The set of keys which are present only in the first map are
" + findKeysPresentOnlyInFirstMap(map1, map2));

   }
public static Set<String> findKeysPresentOnlyInFirstMap(Map<String, String> map1, Map<String,
String> map2)
{   Write code here to find those keys which are present only in the first map
   }
}
```

Q15. Write a program to copy details from one hash map to another, only if the first map does not have that value.

Input (HashMap, HashMap)	Output (HashMap)
{key4=>"Hello", key3=>"are", key7=>"."}, {key5=>"how", key6=>"are", key2=>"you"}	**{key4=>"Hello", key3=>"are", key7=>".", key5=>"how", key2=>"you"}**
{key4=>"Do", key3=>"not",	**{key4=>"Do", key3=>"not", key6=>"stupid", key2=>"me", key1=>"play", key8=>"with",**

key6=>"stupid", key2=>"me"}, {key1=>"play", key8=>"with", key7=>"not", key9=>"it"}	**key9=>"it"}**
{key4=>"Do", key3=>"so", key6=>"open", key2=>"brains", key2=>"Your", key1=>"fall"}, {key8=>"not", key7=>"be", key9=>"out", key19=>"minded", key29=>"brains"}	**{key4=>"Do", key3=>"so", key6=>"open", key2=>"brains", key2=>"Your", key1=>"fall", key8=>"not", key7=>"be", key9=>"out", key19=>"minded"}**
{key10=>"Fun", key3=>"there", key6=>"fair", key2=>"set"}, {key1=>"up", key8=>"there", key7=>".", key9=>"up"}	**{key10=>"Fun", key3=>"there", key6=>"fair", key2=>"set", key1=>"up", key7=>"."}**

```
class CopyMapIfValueDoesNotExist
{   public static void main(String s[])
   {
      Map inputMap1 = new HashMap();
      inputMap1.put("key11", "Hai");
      inputMap1.put("key12", "how");
      inputMap1.put("key13", "you");
      inputMap1.put("key14", ".");
      Map inputMap2 = new HashMap();
      inputMap2.put("key21", "are");
      inputMap2.put("key22", "how");
      inputMap2.put("key23", "friend");
      inputMap2.put("key24", ".");
      inputMap2.put("key25", "Hello");
      System.out.println("The resultant map is : " + copyMap(inputMap1, inputMap2));

   }
```

```
public static Map<String, String> copyMap(Map<String, String> inputMap1, Map<String, String>
inputMap2) {
//Write code here to copy details from one hash map to another, only if the first map does not have
that value
}
}
```

Interview Question on Collections class , Object class and Generics class

Q1. What is Collections class and why use it?
Q2. What is diff between Collections and Collection?
Q3. Explain any 5 method of Collections classs?
Q4. What is Comparable interface in java and why use it?
Q5. What is Comparator interface in java and why use it?
Q6. What is diff between Comparator and Comparable interface?
Q7. What is Generics and why use generics?
Q8. Explain types of Generics in java?
Q9. What is wild card generics?
Q10. What bounded and unbounded generics in java?
Q11. What Object and why Object class is parent of every class in java?
Q12. Explain equals() and hashcode() method of Object class?
Q13. Explain toString(),notify(),notifyAll(),finalize(),static{} block etc in java?
Q14. Explain diff between static and instance block in java?
Q15 How to create user defined class as generics class
Q16. How to create user define interface as generic interfaces?
Q17. What is marker interface in java?
Q18. Explain volatile,transient,assert in java?
Q19. What is object cloning and how to perform object cloning in java?
Q20. What is shadow copy and deep copy in object cloning?

Practice Program on Collections,Generics and Object class

Q1. Write a program to create ArrayList and store 5 values in it and arrange all element in ascending order using Collections.sort() method ,reverse all values using Collections.reverse(),find max value from Collections.mar() value etc
Q2. WAP to create Employee class with field id, name and salary and sort employee data using its id using Comparable interface
Q3. WAP to create Employee class with field id,name and salary and sort employee data using following terms
Case1: sort employee data by using id
Case 2:sort employee data by using salary
Q4. WAP to create Employee class with field id,name and salary and compare two employee with each other using equals() method and generate same hashcode if two employee objects are same otherwise generate different hashcode?

Q5. WAP to create Employee class with id,name and salary and override toString() method in it?
Q6. WAP to create Employee class with id,name and salary and perform object cloning on it?
Q7. WAP to demonstrate finalize() method?