**CDAC Mumbai PG-DAC August 24**

**Assignment No- 4**

1) Write a program that demonstrates widening conversion from int to double and prints the result.

Ans.

class Program{

public static void main(String[] args){

int num1=10;

double num2=(double)num1;

System.out.println("num2 : "+num2);

}

}

2) Create a program that demonstrates narrowing conversion from double to int and prints the result.

Ans.

class Program{

public static void main(String[] args){

double num1=10;

int num2 = (int) num1;

System.out.println("num2 : "+num2);

}

}

3) Write a program that performs arithmetic operations involving different data types (int, double, float) and observes how Java handles widening conversions automatically.

class Program{

public static void main(String[] args){

int num1=10;

float num2 = num1; //widening

double num3 = num1+num2;

System.out.println("Addition : "+num3);

}

}

4) Write a Program that demonstrates widening conversion from int to (double,float, boolean, string) and prints the result.

class Program{

public static void main(String[] args){

int num1=10;

double num2=(double)num1;

float num3=(float) num1;

boolean num4=(boolean)num1;

String num5=Integer.toString(num1);

System.out.println(num1+" "+num2+" "+num3+" "+num4+" "+num5);

}

}

**Interview Questions**

**Note: Write down this interview question on your notebook ,Take a screenshort & Paste that SS in the word document & upload on your Github.**

**What does the static keyword mean in Java? Explain the difference between static and non-static methods.**

* What is the role of the static keyword in the context of memory management.

The static keyword in Java helps with memory management by allowing class members to be shared among all instances of a class, rather than being associated with individual instances

* Can static methods be overloaded and overridden in Java?Howstatic variables shared across multiple instances of a class?

Overloading - Yes

Overriding - No

Static variables are shared across multiple instances of a class because there is only one copy of the variable for the entire class

* What is the significance of the final keyword in Java?

Once a value is stored in a final variable, it's value cannot be changed or modified.

* What are narrowing and widening conversions in Java?

The process of converting value of variable of narrow type into wider type is called as widening.

The opposite of widening is narrowing.

* Provide examples of narrowing and widening conversions between primitive data types.

Widening example - int to double

Narrowing example - double to int

* How does Java handle potential loss of precision during narrowing conversions?

If you attempt to narrow cast a value that is too large for the target data type, the result will be a loss of data due to truncation or overflow.

* Explain the concept of automatic widening conversion in Java.

converting a smaller type to a larger type size

* What are the implications of narrowing and widening conversions on type compatibility and data loss?

Widening conversions are safe and preserve the source value, though they may change its representation.

These conversions change a value to a data type that might not be able to hold all the possible values from the original data. Narrowing conversions are more likely to lose information than widening conversions and can lose numeric magnitude and precision.