Assignment No- 4

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

```
 1  package Codes;
 2  import java.util.*;
 3  public class Program {
 4
 5      public static void main(String[] args) {
 6          int i=10;
 7          double d=i;
 8          System.out.println(d);
 9
10      }
11
12  }
```

Problems Servers Terminal Data Source Explorer Properties Console ×
<terminated> Program [Java Application] C:\JAVA all\eclipse-jee-2024-06-R-win32-x86_64\eclipse\plugins
```
10.0
```

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

```
 1  package Codes;
 2  import java.util.*;
 3  public class Program {
 4
 5      public static void main(String[] args) {
 6          double d = 10;
 7          int i = (int)d;
 8          System.out.println(i);
 9
10      }
11
12  }
```

Problems Servers Terminal Data Source Explorer Properties Console ×
<terminated> Program [Java Application] C:\JAVA all\eclipse-jee-2024-06-R-win32-x86_64\eclipse\plugins\
```
10
```

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

```
1  package Codes;
2  import java.util.*;
3  public class Program {
4
5⊖     public static void main(String[] args) {
6          double d=10.23;
7          int i=53;float f=12.3f;
8          System.out.println(i+d+f);
9
10     }
11
12 }
◄
```

Problems Servers Terminal Data Source Explorer Properties Console ×
\<terminated> Program [Java Application] C:\JAVA all\eclipse-jee-2024-06-R-win32-x86_64\eclipse\plugins\org.eclipse.j
75.53000019073487

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

```
1  package Codes;
2  import java.util.*;
3  public class Program {
4
5⊖     public static void main(String[] args) {
6          int i=12;
7            byte b=1;i=b;
8            double d=i;
9            float f=i;
10           String s=Integer.toString(i);
11             System.out.println(i+" "+d+" "+f+" "+s);
12
◄
```

Problems Servers Terminal Data Source Explorer Properties Console ×
\<terminated> Program [Java Application] C:\JAVA all\eclipse-jee-2024-06-R-win32-x86_64\eclipse\plugins\org.eclipse.justj.openj
1 1.0 1.0 1

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.

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

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

3. What is the significance of the final keyword in Java?

4. What are narrowing and widening conversions in Java?

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

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

7. Explain the concept of automatic widening conversion in Java.

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

1.) Static defines a field a class level member. which means the field will get memory once when class is loaded and it gets memory in method area.

2.) Static method cannot be overridden as static method belongs to class itself and not it's Instance. So there is no instance of the static method to override. We can overload static methods.

3] final keyword in the context of field is used to make value of a variable permanent it cannot be changed values. in case of class final class cannot be inherited but it's instance can be created.

4] narrowing is converting from larger size or data type with more information like decimal values to data type with less information have to do it explicitly widoning is done automatic by compiler

5] narrowing
int to byte   wide
int to short   float to double
short to byte   int to float
double to float
float to int

6] Java takes to floor value in case of decimal in narrowing.

7] when we try to convert data type with less size, info to data type with larger size, info Java does implicit type casting.

8] no class in widening only size increases.
In narrowing if decimal values are present these get loss during type casting and floor value of the variable takes place.