OOPJ Ass5 Soln (SN)

Thursday, September 12, 2024 3:27 PM

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.

```java
package org.example.a;

public class Widening {

	public static void main(String[] args) {
		int i = 10;
		double d = i;

		System.out.println("Inter value is : "+i);
		System.out.println("Double value is : "+d);

	}

}
```

```
Javadoc Declaration Consol
<terminated> Widening [Java Applicat
Inter value is : 10
Double value is : 10.0
```

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

```java
package org.example.a;

public class Narrowing {

	public static void main(String[] args) {
		double d = 12.0;
		int i = (int) d;

		System.out.println("Double value is : "+d);
		System.out.println("Inter value is : "+i);
	}

}
```

```
Javadoc Declaration Console ×
<terminated> Narrowing [Java Application] C:\Eclipse\eclips
Double value is : 12.0
Inter value is : 12
```

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

```java
package org.example.a;

public class ArithmeticOperations {
    public static void main(String[] args) {
        // Initialize variables of different types
        int i = 10;
        float f = 20.5f;
        double d = 30.75;

        // Perform arithmetic operations
        // Addition
        double additionResult = i + f + d;

        // Subtraction
        double subtractionResult = d - f - i;

        // Multiplication
        double multiplicationResult = i * f * d;
```

```
        // Division
        double divisionResult = d / (f + i); // Ensures denominator is not zero

        // Print the results
        System.out.println("Addition Result: " + additionResult);
        System.out.println("Subtraction Result: " + subtractionResult);
        System.out.println("Multiplication Result: " + multiplicationResult);
        System.out.println("Division Result: " + divisionResult);
    }
}
```

```
Javadoc  Declaration  Console ×
<terminated> ArithmeticOperations [Java Application] C:
Multiplication Result: 6303.75
Division Result: 1.0081967213114753
```

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

```
package org.example.a;

public class WideningConversion {
    public static void main(String[] args) {
        // Initialize an integer variable
        int intValue = 42;

        // Widening conversion to double
        double doubleValue = intValue;

        // Widening conversion to float
        float floatValue = intValue;

        // Convert int to String
        String stringValue = Integer.toString(intValue);

        // Convert int to boolean (using a custom interpretation)
        // Note: Java does not support direct conversion from int to boolean
        boolean booleanValue = (intValue != 0); // Custom rule: Non-zero int is true, zero is false

        // Print the results
        System.out.println("Original int value: " + intValue);
        System.out.println("Widened to double: " + doubleValue);
        System.out.println("Widened to float: " + floatValue);
        System.out.println("Converted to String: " + stringValue);
        System.out.println("Converted to boolean: " + booleanValue);
    }
}
```

```
Javadoc  Declaration  Console ×
<terminated> WideningConversion [Java Appl
Converted to String: 42
Converted to boolean: true
```

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?