Java Assignment 03

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

import java.util.Scanner;
public class Q1
{

     public static void main(String[] args)
     {
          int num = 100;

          double result = num; //widening => int to double

          System.out.println("Result : "+result);

     }

}
/*
     Output:
       Result : 100.0
*/




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

import java.util.Scanner;

public class Q2 {

     public static void main(String[] args)
     {
          double num = 200.0;

          int result = (int) num; //narrowing => double to int

          System.out.println("Result : "+result);

     }

}
/*

Output:
  Result : 200

*/
```

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

import java.util.Scanner;

public class Q3
{

     public static void main(String[] args)
     {
          int n1 = 20;
          float n2 = 25.0f;
          double n3 = 30.0;


          Scanner sc = new Scanner(System.in);
          System.out.println("Enter the choice : ");
          int choice = sc.nextInt();

          switch(choice)
          {
          case 1:

               double res1 = n1 + n2;
               double res2 = n1 + n3;
               double res3 = n1 + n2;

               System.out.println("Result of int + float : "+res1);
               System.out.println("Result of int + double : "+res2);
               System.out.println("Result of float + double : "+res3);
               break;

        case 2:

          double res4 = n2 - n1;
          double res5 = n3 - n2;
          double res6 = n3 - n1;

          System.out.println("Result of float - int : "+res4);
          System.out.println("Result of double - float : "+res5);
          System.out.println("Result of double - int : "+res6);
               break;

        case 3:

          double res7 = n1 * n2;
          double res8 = n1 * n3;
          double res9 = n1 * n2;

          System.out.println("Result of int + float : "+res7);
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            System.out.println("Result of int + double : "+res8);
            System.out.println("Result of float + double : "+res9);
                 break;

          case 4:

            double res10 = n1 / n2;
            double res11 = n1 / n3;
            double res12 = n1 / n2;

            System.out.println("Result of int + float : "+res10);
            System.out.println("Result of int + double : "+res11);
            System.out.println("Result of float + double : "+res12);
                 break;

          default:
                 System.out.println("Invalid choice....");
                 break;
            }

      }

}
/*
outputs:

Enter the choice :
1
Result of int + float : 45.0
Result of int + double : 50.0
Result of float + double : 45.0

Enter the choice :
2
Result of float - int : 5.0
Result of double - float : 5.0
Result of double - int : 10.0

Enter the choice :
3
Result of int * float : 500.0
Result of int * double : 600.0
Result of float * double : 500.0


Enter the choice :
4
Result of int / float : 0.800000011920929
Result of int / double : 0.6666666666666666
Result of float / double : 0.800000011920929

*/
```

```java
/*

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

import java.util.Scanner;
public class Q4
{
  public static void main(String[] args)
  {
        int n1 = 20;
        float n2 = 25.0f;
        double n3 = 30.0;


        double result = n1; //widening => int to double

        System.out.println("Result of int to double : "+result);

        float result1 = n1; //widening => int to float

        System.out.println("Result of int to float : "+result1);

        boolean result3;
        if(n1 > 10)
              result3 = true;
        else
              result3 = false;

        System.out.println("Result : "+result3);



        String result4 = String.valueOf(n1); //widening => int to double

        System.out.println("Result of int to String : "+result4);


  }
}

/*
  output :

    Result of int to double : 20.0
     Result of int to float : 20.0
     Result : true
     Result of int to String : 20

*/
```