

1).a.

```
public class New {

    public static void main(String[] args) {
        double value_1 = 300.0;
        byte value_2 = (byte) value_1;
        System.out.println("value_2 = " + value_2);
    }

}
```

due to implicit type casting, 8 bytes double value's 7 bytes loss and only remain 1 byte that necessary for "byte" values. So the final value is 44. Due to huge memory **overflow**.

b.

```
public class New {
    public static void main(String[] args) {
        long value_1 = 2147483648L;
        int value_2 = (int) value_1;
        System.out.println("value_2 = " + value_2);
    }
}
```

due to type casting 8 bytes long value change in to 4 byte int value. -2147483648. Range of long is -9,223,372,036,854,775,808 to 9,223,372,036,854,775,807. Due to cast the values got change due to **overflow**

c.

```
public class New {
    public static void main(String[] args) {
        short value_1 = -150;
        byte value_2 = (byte) value_1;
        System.out.println("value_2 = " + value_2);
    }
}
```

value_2 is 106. Short values store 2 bytes while byte store only 1 byte. So 1 byte is loss. Due to narrowing data got **overflow**

d.

The screenshot shows an IDE with a project named 'untitled1188'. The source code for 'q11.java' is displayed, showing a class with a main method that casts a char value to a byte. The output console shows the result of the program execution.

```
public class q11 {
    public static void main(String[] args) {
        char value_1 = 169;
        byte value_2 = (byte) value_1;
        System.out.println("value_2 = " + value_2);
    }
}
```

Output: value_2 = -87

Process finished with exit code 0

Char contain 2 bytes and byte contain only 1 byte. So due to casting, data may be loss. Output is -87 and that came from $169 - 256 = -87$. Due to loss of characters in that, the computer represent it that form. Due to memory **overflow**

2.

```

public class New {
    public static void main(String[] args) {
        String employeeName = args[0];
        int employeeId = Integer.parseInt(args[1]);
        int hoursWorked = Integer.parseInt(args[2]);
        double hourlyRate = Double.parseDouble(args[3]);
        double grossSalary = hourlyRate * hoursWorked;

        final double TAX_RATE = 0.1;
        double taxDeduction = grossSalary * TAX_RATE;
        double netSalary = grossSalary - taxDeduction;
        System.out.println("-----\n" +
            "Employee Pay Sheet\n" +
            "-----\n" +
            "Employee Name: "+employeeName+"\n" +
            "Employee ID: "+employeeId+"\n" +
            "Hourly Rate: "+hourlyRate+"\n" +
            "Hours Worked: "+hoursWorked+"\n" +
            "Gross Salary: "+grossSalary+"\n" +
            "Tax Deduction: "+taxDeduction+"\n" +
            "-----\n" +
            "Net Salary: "+netSalary+"\n" +
            "-----\n");
    }
}

```

```

Run: New x
"C:\Program Files\Java\jdk-18.0.2.1\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2022.2
-----
Employee Pay Sheet
-----
Employee Name: Alice
Employee ID: 4678
Hourly Rate: 25.0
Hours Worked: 160
Gross Salary: 4000.0
Tax Deduction: 400.0
-----
Net Salary: 3600.0
-----

```

3.

```

public class q3 {
    public static void main(String[] args) {
        double item1Price = Double.parseDouble(args[0]);
        double item2Price = Double.parseDouble(args[1]);
        double item3Price = Double.parseDouble(args[2]);
        double totalCost = + item1Price + item2Price + item3Price;
        final double DISCOUNT_RATE = 0.15;
        double discountAmount = totalCost * DISCOUNT_RATE;
        double finalAmount = totalCost - discountAmount;
        System.out.println("-----\n" +
            "Grocery Bill\n" +
            "-----\n" +
            "Item 1 Price: "+item1Price+"\n" +
            "Item 2 Price: "+item2Price+"\n" +
            "Item 3 Price: "+item3Price+"\n" +
            "-----\n" +
            "Total Cost: "+totalCost+"\n" +
            "Discount (15%): "+discountAmount*-1+"\n" +
            "-----\n" +
            "Final Amount: "+finalAmount+"\n" +
            "-----");
    }
}

```

The screenshot shows the IntelliJ IDEA IDE with a project named 'untitled1188'. The source code for 'q3.java' is displayed in the editor, which matches the code provided in the previous block. The 'Run' console at the bottom shows the output of the program, which is a formatted grocery bill.

```

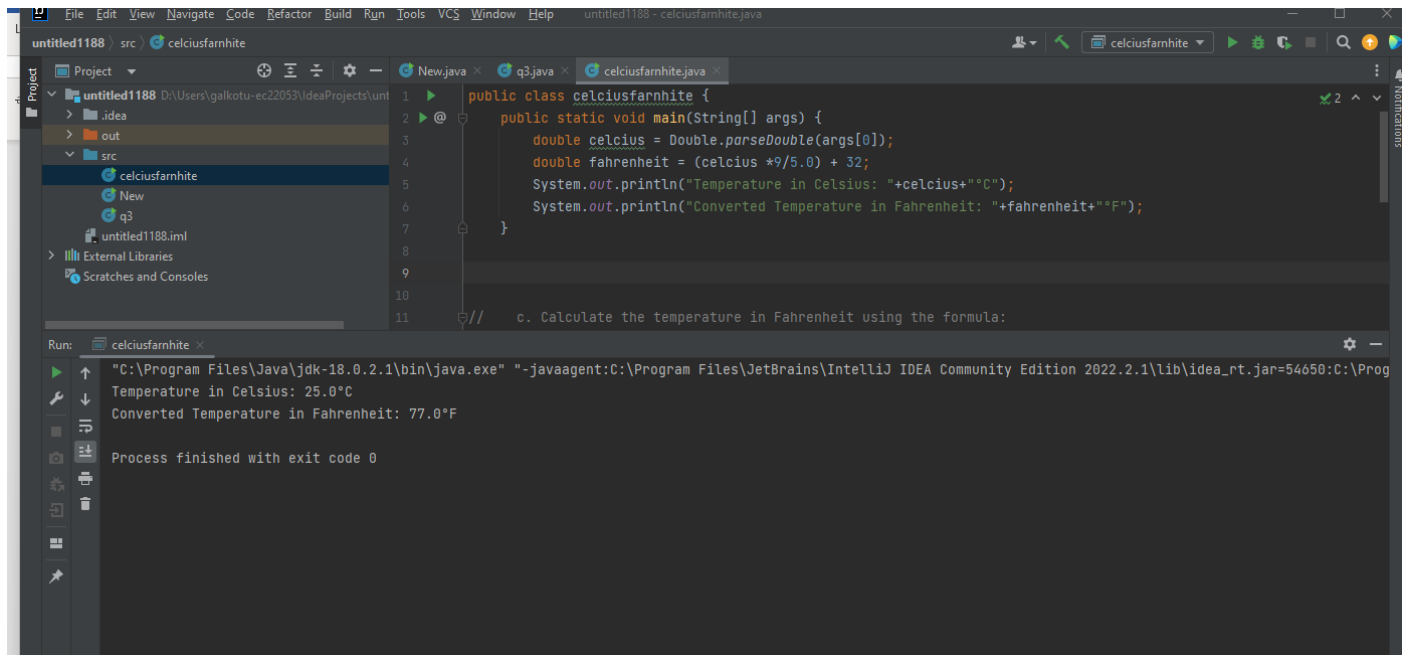
Run: q3 x
"C:\Program Files\Java\jdk-18.0.2.1\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2022.2.1\lib\idea
-----
Grocery Bill
-----
Item 1 Price: 20.0
Item 2 Price: 30.0
Item 3 Price: 50.0
-----
Total Cost: 100.0
Discount (15%): -15.0
-----
Final Amount: 85.0
-----

Process finished with exit code 0

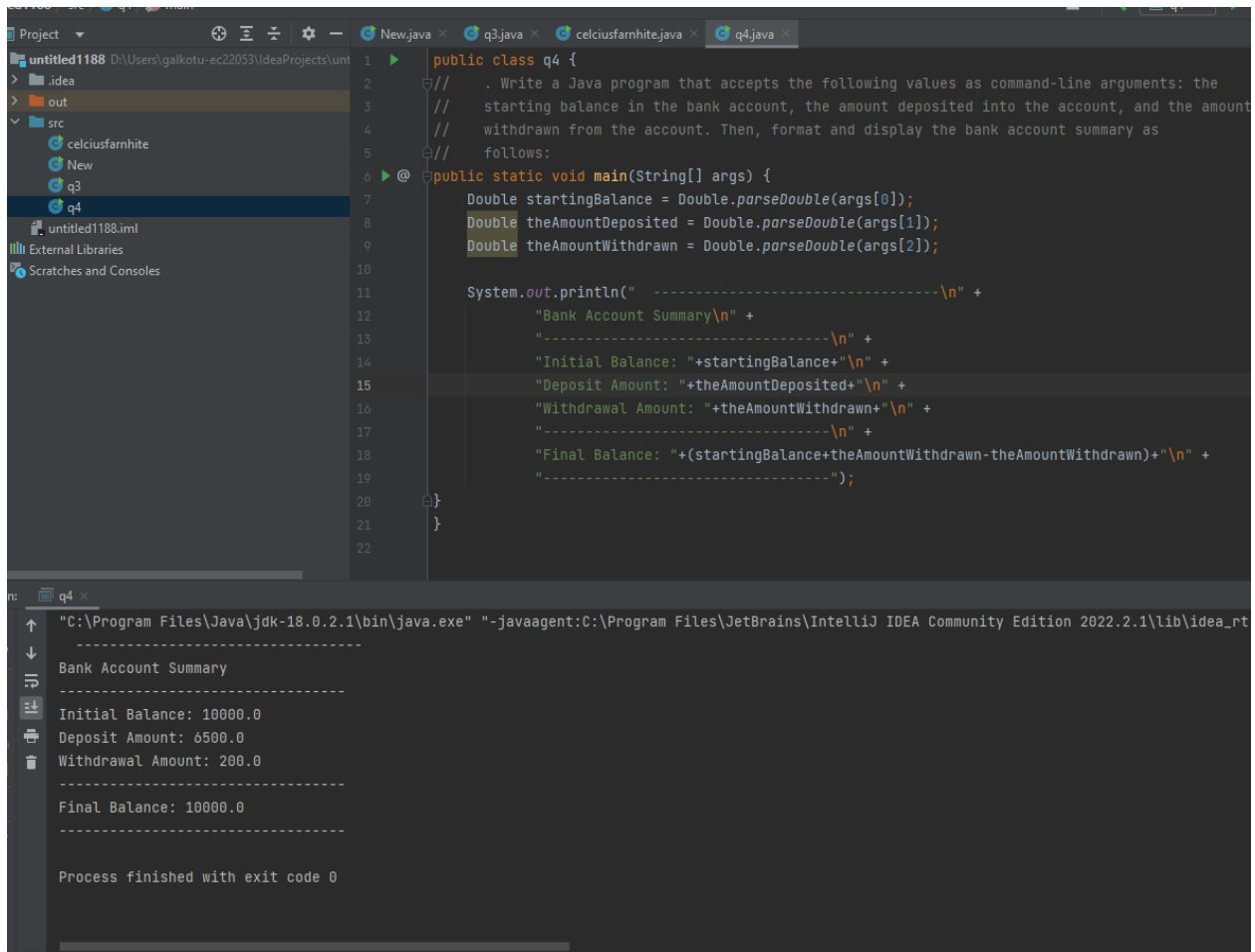
```

4.

```
public class celciusfarnhite {  
    public static void main(String[] args) {  
        double celcius = Double.parseDouble(args[0]);  
        double fahrenheit = (celcius *9/5.0) + 32;  
        System.out.println("Temperature in Celsius: "+celcius+"°C");  
        System.out.println("Converted Temperature in Fahrenheit: "+fahrenheit+"°F");  
    }  
}
```



5.



```

1 public class q4 {
2     // . Write a Java program that accepts the following values as command-line arguments: the
3     // starting balance in the bank account, the amount deposited into the account, and the amount
4     // withdrawn from the account. Then, format and display the bank account summary as
5     // follows:
6     @ public static void main(String[] args) {
7         Double startingBalance = Double.parseDouble(args[0]);
8         Double theAmountDeposited = Double.parseDouble(args[1]);
9         Double theAmountWithdrawn = Double.parseDouble(args[2]);
10
11         System.out.println(" ----- \n" +
12             "Bank Account Summary \n" +
13             "----- \n" +
14             "Initial Balance: "+startingBalance+"\n" +
15             "Deposit Amount: "+theAmountDeposited+"\n" +
16             "Withdrawal Amount: "+theAmountWithdrawn+"\n" +
17             "----- \n" +
18             "Final Balance: "+(startingBalance+theAmountWithdrawn-theAmountWithdrawn)+"\n" +
19             "-----");
20     }
21 }
22

```

Bank Account Summary

Initial Balance: 10000.0

Deposit Amount: 6500.0

Withdrawal Amount: 200.0

Final Balance: 10000.0

Process finished with exit code 0

```

public class q4 {
public static void main(String[] args) {
    Double startingBalance = Double.parseDouble(args[0]);
    Double theAmountDeposited = Double.parseDouble(args[1]);
    Double theAmountWithdrawn = Double.parseDouble(args[2]);

    System.out.println(" ----- \n" +
        "Bank Account Summary \n" +
        "----- \n" +
        "Initial Balance: "+startingBalance+"\n" +
        "Deposit Amount: "+theAmountDeposited+"\n" +
        "Withdrawal Amount: "+theAmountWithdrawn+"\n" +
        "----- \n" +
        "Final Balance: "+(startingBalance+theAmountWithdrawn-
theAmountWithdrawn)+"\n" +
        "-----");
}
}

```