PROGRAMING FUNDAMENTLS

LAB ASSIGNMENT# 1

NAME: [redacted]

REGISTRATION NUMBE[redacted]

DATE: **28-10-2021**

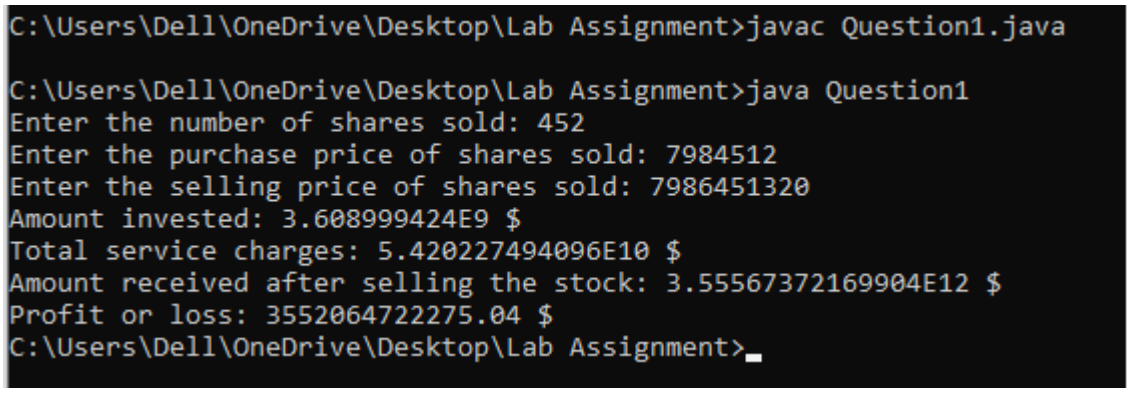
SUBMITTED TO: [redacted]

SECTIO[redacted]

Question 1:

```
import java.util.*;
public class Question1
{
	public static void main(String[] args)
	{
		Scanner input = new Scanner(System.in);
		final double servis_charges = 1.5;
		System.out.print("Enter the number of shares sold: ");
		double share_sold = input.nextDouble();
		System.out.print("Enter the purchase price of shares sold: ");
		double purchase_price = input.nextDouble();
		System.out.print("Enter the selling price of shares sold: ");
		double selling_price = input.nextDouble();
		double amount_invested = purchase_price*share_sold;
		double total_servis_charges =
((share_sold*selling_price)*(servis_charges/100)+(share_sold*purchase_price)*(servis_charges/100));
		double amount_received = (share_sold*selling_price)-total_servis_charges;
		double gain_or_lost = amount_received-amount_invested;
		System.out.println("Amount invested: "+amount_invested+" $");
	   System.out.println("Total service charges: "+total_servis_charges+" $");
	   System.out.println("Amount received after selling the stock: "+amount_received+" $");
	   System.out.printf("Profit or loss: %.2f $",gain_or_lost);
	}
}
```

OUTPUT:

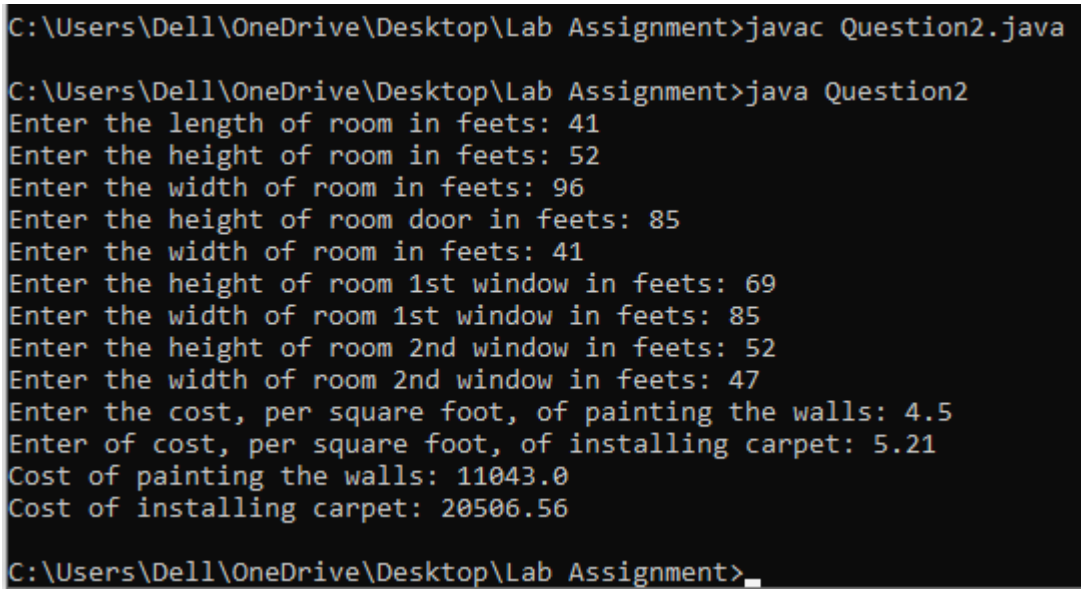

C:\Users\Dell\OneDrive\Desktop\Lab Assignment>javac Question1.java
C:\Users\Dell\OneDrive\Desktop\Lab Assignment>java Question1
Enter the number of shares sold: 452
Enter the purchase price of shares sold: 7984512
Enter the selling price of shares sold: 7986451320
Amount invested: 3.608999424E9 $
Total service charges: 5.420227494096E10 $
Amount received after selling the stock: 3.55567372169904E12 $
Profit or loss: 3552064722275.04 $
C:\Users\Dell\OneDrive\Desktop\Lab Assignment>

Question 2:

```
import java.util.*;
public class Question2
{
	public static void main(String[] args)
	{
		Scanner input = new Scanner(System.in);
		System.out.print("Enter the length of room in feets: ");
		double room_length = input.nextDouble();
		System.out.print("Enter the height of room in feets: ");
		double room_height = input.nextDouble();
		System.out.print("Enter the width of room in feets: ");
		double room_width = input.nextDouble();
		System.out.print("Enter the height of room door in feets: ");
		double door_height = input.nextDouble();
		System.out.print("Enter the width of room in feets: ");
		double door_width = input.nextDouble();
		System.out.print("Enter the height of room 1st window in feets: ");
		double first_window_height = input.nextDouble();
		System.out.print("Enter the width of room 1st window in feets: ");
		double first_window_width = input.nextDouble();
		System.out.print("Enter the height of room 2nd window in feets: ");
		double second_window_height = input.nextDouble();
		System.out.print("Enter the width of room 2nd window in feets: ");
		double second_window_width = input.nextDouble();
		System.out.print("Enter the cost, per square foot, of painting the walls: ");
		double paint_cost = input.nextDouble();
		System.out.print("Enter cost, per square foot, of installing carpet: ");
		double carpet_cost = input.nextDouble();
```

```
                double room_measurement=((room_length*room_height)*2+(room_height*room_width)*2);

                double ignore_remaining_materials = ((door_width*door_height)+(first_window_height*first_window_width)+(second_window_height*second_window_width));

                double final_room_measurement = room_measurement-ignore_remaining_materials;

                double total_paint_cost = final_room_measurement*paint_cost;

                System.out.println("Cost of painting the walls: "+total_paint_cost);

                double final_carpet_cost = (room_width*room_length)*carpet_cost;

                System.out.println("Cost of installing carpet: "+final_carpet_cost);

        }

}
```

OUTPUT:

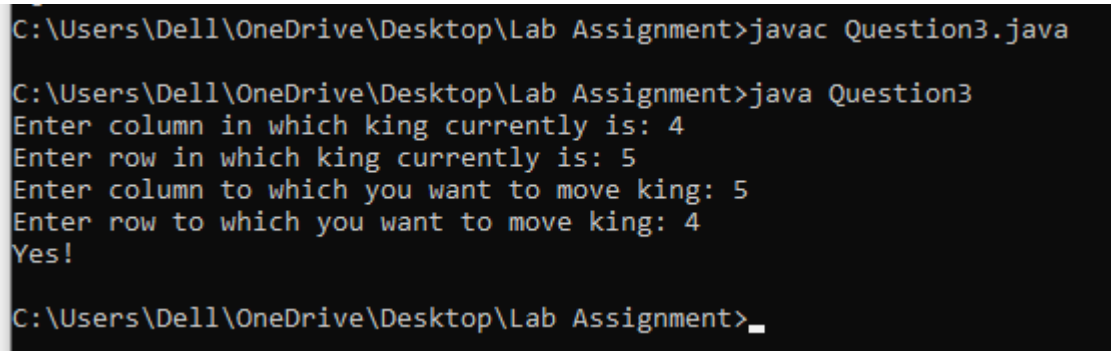


Question 3:

```
import java.util.Scanner;

public class Question3
{
	public static void main(String[] args)
	{
		int initialColumn, initialRow, movedColumn, movedRow;
		Scanner input = new Scanner(System.in);
		System.out.print("Enter column in which king currently is: ");
		initialColumn = input.nextInt();
		System.out.print("Enter row in which king currently is: ");
		initialRow = input.nextInt();
		System.out.print("Enter column to which you want to move king: ");
		movedColumn = input.nextInt();
		System.out.print("Enter row to which you want to move king: ");
		movedRow = input.nextInt();
		if ((initialRow==movedRow) && ((movedColumn==(initialColumn-1)) ||
(movedColumn==(initialColumn+1)) || (movedColumn==initialColumn)) )
		{
			System.out.println("Yes!");
		}
		else if (((initialRow==(movedRow-1)) || (initialRow==(movedRow+1))) &&
((movedColumn==initialColumn) || (movedColumn==(initialColumn-1)) ||
(movedColumn==(initialColumn+1))) )
		{
			System.out.println("Yes!");
		}
		else
		{
			System.out.println("NO!");
```

```
            }
        }
}
```

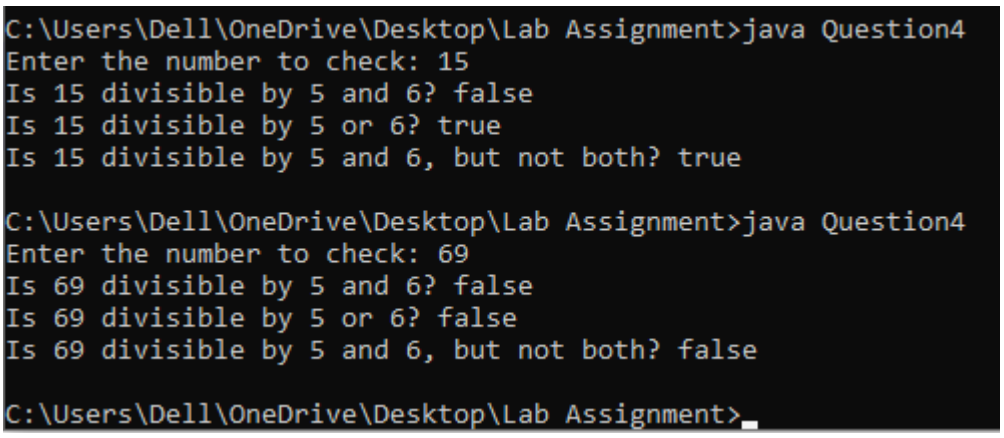
OUTPUT:


C:\Users\Dell\OneDrive\Desktop\Lab Assignment>javac Question3.java
C:\Users\Dell\OneDrive\Desktop\Lab Assignment>java Question3
Enter column in which king currently is: 4
Enter row in which king currently is: 5
Enter column to which you want to move king: 5
Enter row to which you want to move king: 4
Yes!
C:\Users\Dell\OneDrive\Desktop\Lab Assignment>

Question 4:

```
import java.util.Scanner;

public class Question4

{

   public static void main(String[] args)

           {

      final int NUM1 = 5, NUM2 = 6;

      int enteredNumber;

      boolean isDivisible5, isDivisible6;

      Scanner input = new Scanner(System.in);

      System.out.print("Enter the number to check: ");

      enteredNumber = input.nextInt();

      isDivisible5 = (enteredNumber % NUM1) == 0;

      isDivisible6 = (enteredNumber % NUM2) == 0;

      System.out.println("Is "+enteredNumber+" divisible by 5 and 6? "+(isDivisible5 && isDivisible6));

      System.out.println("Is "+enteredNumber+" divisible by 5 or 6? "+(isDivisible5 || isDivisible6));

      System.out.println("Is "+enteredNumber+" divisible by 5 and 6, but not both? "+(isDivisible5 ^
isDivisible6));

   }

}
```

OUTPUT:



Question 5:

```
import java.util.Scanner;

public class Question5

{

	public static void main(String[] args)

	{

		final double FEDERAL_TAX_PER =  15, STATE_TAX_PER = 3.5, SOCIAL_SECURITY_PER = 5.75, MEDICARE_TAX_PER = 2.75,

		PENSION_PLAN_PER = 5, HEALTH_INSURANCE = 75.00;

		double grossAmount, federalTax, stateTax, socialSecurityTax, medicareTax, pensionPlan, netPay;

		String name;

		Scanner input = new Scanner(System.in);

		System.out.print("Enter name of employee:");

		name = input.nextLine();

		System.out.print("Enter Gross pay in dollars: ");

		grossAmount = input.nextDouble();

		federalTax = grossAmount * FEDERAL_TAX_PER / 100;

		stateTax = grossAmount * STATE_TAX_PER / 100;

		socialSecurityTax = grossAmount * SOCIAL_SECURITY_PER / 100;

		medicareTax = grossAmount * MEDICARE_TAX_PER / 100;

		pensionPlan = grossAmount * PENSION_PLAN_PER / 100;

		netPay = grossAmount - federalTax - stateTax- socialSecurityTax - medicareTax - pensionPlan - HEALTH_INSURANCE;

		System.out.println(name);

		System.out.printf("Gross Amount:         $ %8.2f%n",grossAmount);

		System.out.printf("Federal Tax:          $ %8.2f%n",federalTax);

		System.out.printf("State Tax:            $ %8.2f%n",stateTax);
```

```
                System.out.printf("Social Security Tax:   $ %8.2f%n",socialSecurityTax);
                System.out.printf("Medicare/Medicaid Tax: $ %8.2f%n",medicareTax);
                System.out.printf("Pension Plan:          $ %8.2f%n",pensionPlan);
                System.out.printf("Health Insurance:      $ %8.2f%n",HEALTH_INSURANCE);
                System.out.printf("Net Pay:               $ %8.2f%n",netPay);
        }
}
```

OUTPUT:

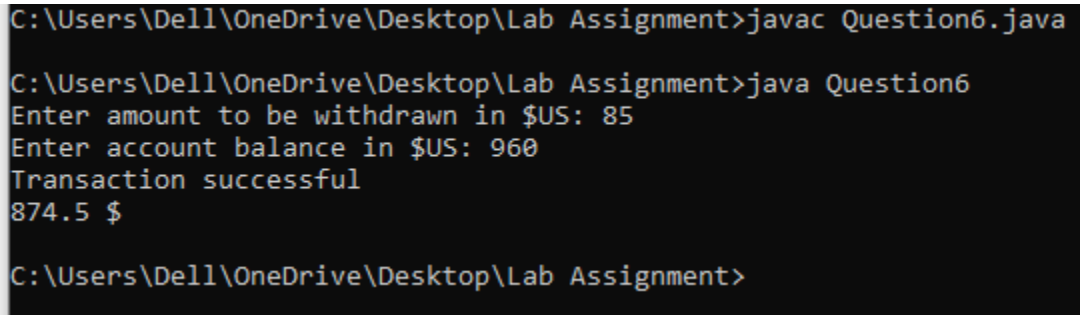
```
C:\Users\Dell\OneDrive\Desktop\Lab Assignment>javac Question5.java

C:\Users\Dell\OneDrive\Desktop\Lab Assignment>java Question5
Enter name of employee:Deepak Kumar
Enter Gross pay in dollars: 1000054
Deepak Kumar
Gross Amount:          $ 1000054.00
Federal Tax:           $ 150008.10
State Tax:             $ 35001.89
Social Security Tax:   $ 57503.11
Medicare/Medicaid Tax: $ 27501.49
Pension Plan:          $ 50002.70
Health Insurance:      $    75.00
Net Pay:               $ 679961.72

C:\Users\Dell\OneDrive\Desktop\Lab Assignment>
```

Question 6:

```
import java.util.*;
public class Question6
{
   public static void main(String[] args)
          {
      final double BANK_CHARGES = 0.5;
      int withdrawAmount, accountBalance;
      Scanner input = new Scanner(System.in);
      System.out.print("Enter amount to be withdrawn in $US: ");
      withdrawAmount = input.nextInt();
      System.out.print("Enter account balance in $US: ");
      accountBalance = input.nextInt();
      if (withdrawAmount<=2000 && accountBalance<=2000)
                  {
        if ((withdrawAmount+BANK_CHARGES)<=accountBalance && (withdrawAmount%5)==0)
                        {
          System.out.println("Transaction successful");
          System.out.println(accountBalance - withdrawAmount - BANK_CHARGES+" $");;
        }
                        else if ((withdrawAmount+BANK_CHARGES)<=accountBalance &&
!((withdrawAmount%5)==0))
                        {
          System.out.println("Incorrect Withdrawal Amount (not multiple of 5)");
        }
                        else if (!((withdrawAmount+BANK_CHARGES)<=accountBalance) &&
(withdrawAmount%5)==0)
                              {
          System.out.println("Insufficient Funds");
```

```
        }
                        else
                        {
            System.out.println("Invalid amount entered");
        }
      }
                else
                {
        System.out.println("Invalid amount entered");
      }
   }
}
```

OUTPUT:

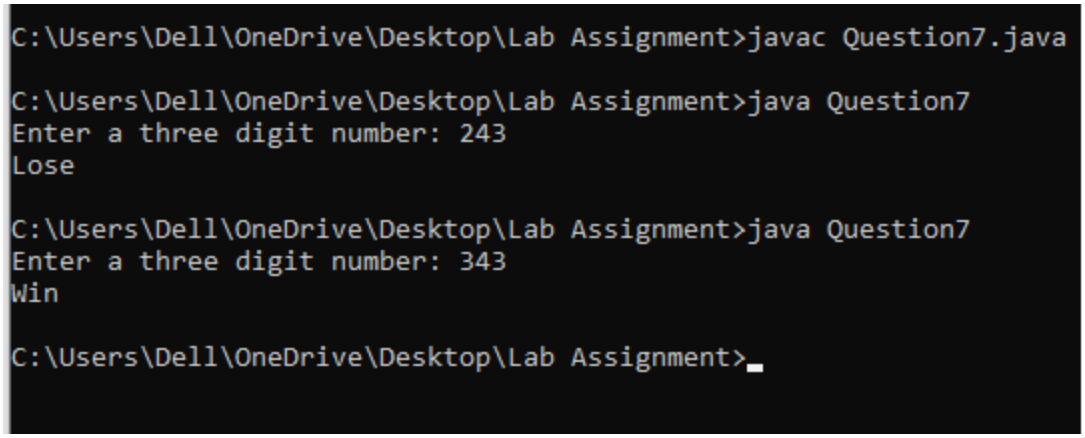


Question 7:

```
import java.util.Scanner;
public class Question7
{
   public static void main(String[] args)
        {
      int enteredNumber, firstDigit, secondDigit, lastDigit;
      Scanner input = new Scanner(System.in);
      System.out.print("Enter a three digit number: ");
      enteredNumber = input.nextInt();
      if (enteredNumber < 1000 && enteredNumber >99)
                  {
         firstDigit = enteredNumber % 10;
         enteredNumber = enteredNumber / 10;
         secondDigit = enteredNumber % 10;
         enteredNumber = enteredNumber / 10;
         lastDigit = enteredNumber % 10;
         if (firstDigit == lastDigit)
                                    {
                  System.out.println("Win");
         }
                        else
                        {
                  System.out.println("Lose");
         }
      }
                  else
                  {
         System.out.println("Out of range number");
```

```
    }
        }
}
```

OUTPUT:

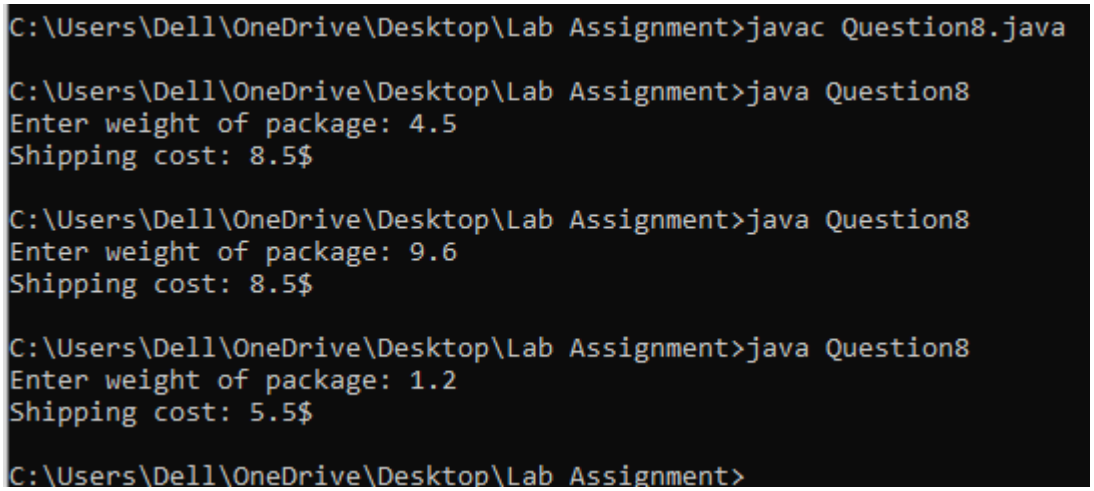

C:\Users\Dell\OneDrive\Desktop\Lab Assignment>javac Question7.java
C:\Users\Dell\OneDrive\Desktop\Lab Assignment>java Question7
Enter a three digit number: 243
Lose
C:\Users\Dell\OneDrive\Desktop\Lab Assignment>java Question7
Enter a three digit number: 343
Win
C:\Users\Dell\OneDrive\Desktop\Lab Assignment>

Question 8:

```
import java.util.Scanner;
public class Question8
{
   public static void main(String[] args)
        {
      double weight;
      Scanner input = new Scanner(System.in);
      System.out.print("Enter weight of package: ");
      weight = input.nextDouble();
      if (weight>0 && weight<=1)
                  {
         System.out.println("Shipping cost: 3.5$");
      }
                  else if (weight<=3)
                  {
         System.out.println("Shipping cost: 5.5$");
      }
                  else if (weight<=10)
                        {
         System.out.println("Shipping cost: 8.5$");
      }
                  else if (weight>=20)
                  {
         System.out.println("Shipping cost: 10s.5$");
      }
                  else
                  {
         System.out.println("The package cannot be shipped.");
```

```
    }
  }
}
```

OUTPUT:

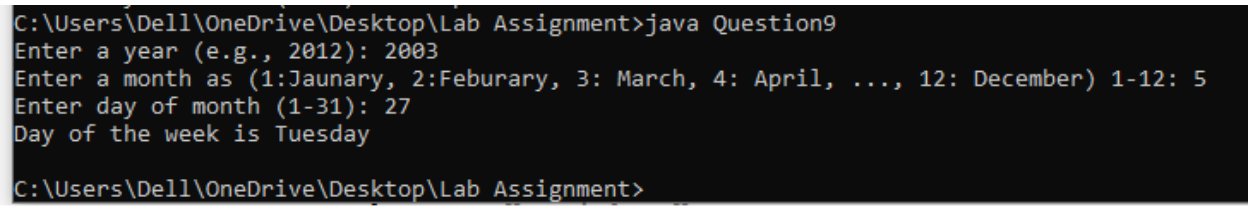

C:\Users\Dell\OneDrive\Desktop\Lab Assignment>javac Question8.java
C:\Users\Dell\OneDrive\Desktop\Lab Assignment>java Question8
Enter weight of package: 4.5
Shipping cost: 8.5$
C:\Users\Dell\OneDrive\Desktop\Lab Assignment>java Question8
Enter weight of package: 9.6
Shipping cost: 8.5$
C:\Users\Dell\OneDrive\Desktop\Lab Assignment>java Question8
Enter weight of package: 1.2
Shipping cost: 5.5$
C:\Users\Dell\OneDrive\Desktop\Lab Assignment>

Question 9:

```
import java.util.Scanner;

public class Question9

{

   public static void main(String[] args)

           {

      int h, q, m, j, k, year;

      String day = "";

      Scanner input = new Scanner(System.in);

      System.out.print("Enter a year (e.g., 2012): ");

      year = input.nextInt();

      System.out.print("Enter a month as (1:Jaunary, 2:Feburary, 3: March, 4: April, ..., 12: December) 1-
12: ");

      m = input.nextInt();

      System.out.print("Enter day of month (1-31): ");

      q = input.nextInt();

      if (m>0 && m<13 && q>0 && q<32) {

         if (m == 1) {

            m = 13;

            year = year - 1;

         }else if (m == 2) {

            m = 14;

            year = year - 1;

         }

         j = year / 100;

         k = year % 100;

         h = (q + ((26*(m+1))/10) + k + (k/4) + (j/4) + (5*j)) % 7;

         switch(h)

                              {
```

```
            case 0:
               day = "Saturday";
               break;
            case 1:
               day = "Sunday";
               break;
            case 2:
               day = "Monday";
               break;
            case 3:
               day = "Tuesday";
               break;
            case 4:
               day = "Wednesday";
               break;
            case 5:
               day = "Thursday";
               break;
            case 6:
               day = "Friday";
               break;
         }
         System.out.println("Day of the week is "+day);
      }
   }
}
```

OUTPUT:


C:\Users\Dell\OneDrive\Desktop\Lab Assignment>java Question9
Enter a year (e.g., 2012): 2003
Enter a month as (1:Jaunary, 2:Feburary, 3: March, 4: April, ..., 12: December) 1-12: 5
Enter day of month (1-31): 27
Day of the week is Tuesday
C:\Users\Dell\OneDrive\Desktop\Lab Assignment>

Question 10:

```
import java.util.Scanner;

public class Question10
{
   public static void main(String[] args)
          {
      final double RADIOUS = 10;
      double x, y, distance;
      Scanner input = new Scanner(System.in);
      System.out.print("Enter x and y coordinates of point: ");
      x = input.nextDouble();
      y = input.nextDouble();
      distance = Math.sqrt(((x*x) + (y*y)));
      if (distance<=RADIOUS)
                  {
         System.out.println("The point ("+x+", "+y+") is in the circle");
      }
                  else
                  {
         System.out.println("The point ("+x+", "+y+") is not in the circle");
      }
   }
}
```

OUTPUT:

```
C:\Users\Dell\OneDrive\Desktop\Lab Assignment>javac Question10.java

C:\Users\Dell\OneDrive\Desktop\Lab Assignment>java Question10
Enter x and y coordinates of point: 4 5
The point (4.0, 5.0) is in the circle

C:\Users\Dell\OneDrive\Desktop\Lab Assignment>
```