Section 2: Java Programming with Conditional Statements

Question 1: Grade Classification

Write a program to classify student grades based on the following criteria:

 If the score is greater than or equal to 90, print "A"

 If the score is between 80 and 89, print "B"

 If the score is between 70 and 79, print "C"

 If the score is between 60 and 69, print "D"

 If the score is less than 60, print "F"

Input:

```
import java.util.Scanner;


class Grade{
	public static void main(String args[]) {
	Scanner input = new Scanner(System.in);
	int a;
	System.out.println("Enter the marks of the student: ");
	a = input.nextInt();
		if(a>=90)
		{
			System.out.println("Student Scored A grade");
		}
		else if(a>=80)
		{
			System.out.println("Student Scored B grade");
		}
		else if(a>=70)
		{
			System.out.println("Student Scored C grade");
		}
		else if(a>=60)
```

```
            {
                System.out.println("Student Scored D grade");
            }
            else
            {
                System.out.println("Student Scored F grade");
            }

        }
}
```

Output:

```
D:\cdac\PG-DAC\assignment\Day 2\Assignment 2\Section 2\program>javac Grade.java

D:\cdac\PG-DAC\assignment\Day 2\Assignment 2\Section 2\program>java Grade
Enter the marks of the student:
70
Student Scored C grade
```

Question 2: Days of the Week

Write a program that uses a nested switch statement to print out the day of the week based on an integer input (1 for Monday, 2 for Tuesday, etc.). Additionally, within each day, print whether it is a weekday or weekend.

Input:

```
import java.util.Scanner;


class Day{
    public static void main(String args[]) {
    Scanner input = new Scanner(System.in);
    System.out.println("Enter the number(0-7): ");
    int Day = input.nextInt();
        switch(Day){
            case 1:
                System.out.println("Today is Monday ,its  a weekday");
```

```
                    break;
                case 2:
                    System.out.println("Today is Tuesday ,its  a weekday");
                    break;
                case 3:
                    System.out.println("Today is Wednesday ,its  a weekday");
                    break;
                case 4:
                    System.out.println("Today is Thursday ,its  a weekday");
                    break;
                case 5:
                    System.out.println("Today is Friday ,its  a weekday");
                    break;
                case 6:
                    System.out.println("Today is Saturday ,its  a weekend");
                    break;
                case 7:
                    System.out.println("Today is Sunday ,its  a weekend");
                    break;
                default:
                    System.out.print("please make correct choice beetween 0 to
7");

            }
        }
}
```

Output:

```
D:\cdac\PG-DAC\assignment\Day 2\Assignment 2\Section 2\program>javac Day.java

D:\cdac\PG-DAC\assignment\Day 2\Assignment 2\Section 2\program>java Day
Enter the number(0-7):
7
Today is Sunday ,its  a weekend

D:\cdac\PG-DAC\assignment\Day 2\Assignment 2\Section 2\program>
```

Question 3: Calculator

Write a program that acts as a simple calculator. It should accept two numbers and an operator (+, -, *, /) as input. Use a switch statement to perform the appropriate operation. Use nested if□else to check if division by zero is attempted and display an error message.

Input:

```
import java.util.Scanner;


class Calculator{
	public static void main(String args[]) {
	Scanner input = new Scanner(System.in);
	System.out.println("Enter two number: ");
	double a = input.nextDouble();
		double b = input.nextDouble();
		double c;
		System.out.println("Enter the operator (+,-,*,/): ");
	char o = input.next().charAt(0);
		switch(o){
			case '+':
				c=a+b;
				System.out.println(a+" + "+b+" = "+c);
				break;
			case '-':
				c=a-b;
				System.out.println(a+" - "+b+" = "+c);
```

```
                    break;
                case '*':
                    c=a*b;
                    System.out.println(a+" * "+b+" = "+c);
                    break;
                case '/':
                    if(b==0)
                    {
                        System.out.println("Error: you are trying to divide by
zero use number other than zero");
                    }
                    else
                    {
                        c=a/b;
                        System.out.println(a+" / "+b+" = "+c);
                    }
                    break;
                default:
                    System.out.print("please make correct choice");

            }
        }
}
```

Output:

```
D:\cdac\PG-DAC\assignment\Day 2\Assignment 2\Section 2\program>javac Calculator.java

D:\cdac\PG-DAC\assignment\Day 2\Assignment 2\Section 2\program>java Calculator
Enter two number:
10
20
Enter the operator (+,-,*,/):
+
10.0 + 20.0 = 30.0

D:\cdac\PG-DAC\assignment\Day 2\Assignment 2\Section 2\program>java Calculator
Enter two number:
20
0
Enter the operator (+,-,*,/):
/
Error: you are trying to divide by zero use number other than zero
```

Question 4: Discount Calculation

Write a program to calculate the discount based on the total purchase amount. Use the following criteria:

 If the total purchase is greater than or equal to Rs.1000, apply a 20% discount.

 If the total purchase is between Rs.500 and Rs.999, apply a 10% discount.

 If the total purchase is less than Rs.500, apply a 5% discount.

Additionally, if the user has a membership card, increase the discount by 5%.

Input:

```
import java.util.Scanner;


class Discount{
    public static void main(String args[]) {
        Scanner input = new Scanner(System.in);
        System.out.println("Enter the Total price: ");
        double p = input.nextDouble();
            double d;
            System.out.println("Total price before discount: "+ p);
            if(p>=1000)
            {
                    d=0.2*p;
```

```
            p=p-d;
            System.out.println("After applying 20% discount, total price: "+ p);
        }
        else if (p >= 500)
        {
            d=0.1*p;
            p=p-d;
            System.out.println("After applying 10% discount, total price: "+ p);

        }
        else
        {
            d=0.05*p;
            p=p-d;
            System.out.println("After applying 5% discount, total price: "+ p);

        }
        System.out.println("Do you have Membership card (y/n): ");
        char card=input.next().charAt(0);
        if(card=='y')
        {
            d=0.05*p;
            p=p-d;
            System.out.println("After applying membership card additional 5% discount, total price: "+ p);
        }
        else
        {
            System.out.println("As you have no Membership card 5% discount will not be applied, so total price: "+ p);
```

```
        }
    }
}
```

Output:

```
D:\cdac\PG-DAC\assignment\Day 2\Assignment 2\Section 2\program>javac Discount.java

D:\cdac\PG-DAC\assignment\Day 2\Assignment 2\Section 2\program>java Discount
Enter the Total price:
200000
Total price before discount: 200000.0
After applying 20% discount, total price: 160000.0
Do you have Membership card (y/n):
y
After applying membership card additional 5% discount, total price: 152000.0
```

Question 5: Student Pass/Fail Status with Nested Switch

Write a program that determines whether a student passes or fails based on their grades in three subjects. If the student scores more than 40 in all subjects, they pass. If the student fails in one or more subjects, print the number of subjects they failed in

Input:

```
import java.util.Scanner;


class Pass{
    public static void main(String args[]) {
        Scanner input = new Scanner(System.in);
        int a, b, c;
        System.out.println("Enter three subject marks");
        a = input.nextInt();
        b = input.nextInt();
            c = input.nextInt();
        int f=0;
            if(a<40)
            {
                    f=f+1;
            }
```

```
        if(b<40)
        {
                f=f+1;
        }
        if(c<40)
        {
                f=f+1;
        }
        switch(f){
                case 1:
                        System.out.println("Student Failed in 1 subject");
                        break;
                case 2 :
                        System.out.println("Student Failed in 2 subject");
                        break;
                case 3 :
                        System.out.println("Student Failed in 3 subject");
                        break;
                default:
                        System.out.println("Student Passed in all subject");
                        break;
        }
    }
}
```

Output:

```
D:\cdac\PG-DAC\assignment\Day 2\Assignment 2\Section 2\program>javac Pass.java

D:\cdac\PG-DAC\assignment\Day 2\Assignment 2\Section 2\program>java Pass
Enter three subject marks
100
90
80
Student Passed in all subject
```