Task 1

Subject	Data Structure and Algorithm
Lecturer	Imam Fahrur Rozi ST. MT.
Type	Assignment
Semester	Semester 2
Time	@February 14, 2023
Files & Media	

Jobsheet 1

questions 1

1. code

```
import java.util.Scanner;
public class Main
{
    static Scanner input = new Scanner(System.in);
    static void finalscore(int a, int m, int f)
    {
        double average = ((0.2*a) + (0.35*m) + (0.45*f));
        System.out.println("Nilai Akhir: " + average);
        if(average > 50)
        {
            if (average > 80)
            {
                System.out.println("Nilai Huruf: A");
            }
            else if (average > 73)
            {
                System.out.println("Nilai Huruf: B+");
            }
            else if (average > 65)
            {
                System.out.println("Nilai Huruf: B");
            }
            else if (average > 60)
            {
                System.out.println("Nilai Huruf: C+");
            }
            else
            {
                System.out.println("Nilai Huruf: C");
            }
            System.out.println("============================");
            System.out.println("Selamat Lulus!");
        }
        else
        {
            if (average > 39)
            {
                System.out.println("Nilai Huruf: D");
            }
            else
            {
                System.out.println("Nilai Huruf: E");
            }
            System.out.println("============================");
            System.out.println("NT Masbro! Try Again Later!");
        }
    }
    static int limited(String message)
    {
        while (true)
```

```
        {
            System.out.print(message);
            int userInput = input.nextInt();
            input.nextLine();
            if (userInput > 0 && userInput <= 100)
            {
                return userInput;
            }
            System.out.println("Nilai Tugas tidak bisa < 0 atau > 100!");
        }
    }
    public static void main(String[] args)
    {

        System.out.println("Program Menghitung Nilai Akhir");
        System.out.println("==============================");
        int assignment = Integer.parseInt(String.format("%d", limited("Masukkan Nilai Tugas: ")));
        int midterm = Integer.parseInt(String.format("%d", limited("Masukkan Nilai UTS: ")));
        int finalsc = Integer.parseInt(String.format("%d", limited("Masukkan Nilai UAS: ")));
        System.out.println("==============================");
        finalscore(assignment, midterm, finalsc);
    }
}
```

```
Program Menghitung Nilai Akhir
==============================
Masukkan Nilai Tugas: 80
Masukkan Nilai UTS: 90
Masukkan Nilai UAS: 100
==============================
Nilai Akhir: 92.5
Nilai Huruf: A
==============================
Selamat Lulus!
```

questions 2

1. code

```
import  java.util.Scanner;
public class Main
{
    static Scanner input = new Scanner(System.in);
    public static void main(String[] args)
    {
        System.out.print("Input NIM: ");
        String NIM = input.nextLine();
        int last2digit = Integer.parseInt(String.format("%c%c", NIM.charAt(NIM.length()-2), NIM.charAt(NIM.length()-1)));
        int iteration = 1;
        int day = iteration;
        for (iteration = 1; iteration <= last2digit; iteration++)
        {
            if (day == 1)
            {
                System.out.println("Monday");
            }
            else if (day  == 2)
            {
                System.out.println("Tuesday");
            }
            else if (day == 3)
            {
                System.out.println("Wednesday");
            }
            else if (day == 4)
            {
                System.out.println("Thursday");
            }
            else if (day == 5)
            {
                System.out.println("Friday");
            }
```

```
            else if (day == 6)
            {
                System.out.println("Saturday");
            }
            else
            {
                System.out.println("Monday");
                day = 0;
            }
            day++;
        }
    }
}
```

```
Input NIM: 2241720123
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Monday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Monday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Monday
Monday
Tuesday
```

questions 3

1. code

```
public class Main {
    public static void main(String[] args)
    {
        int[][] data =
                {
                        {10, 5, 15, 7},
                        {6, 11, 9, 12},
                        {2, 10, 10, 5},
                        {5, 7, 12, 9}
                };
        for (int i = 0; i < data.length; i++)
        {
            int stock = 0;
            for (int j = 0; j < data[0].length; j++)
            {
                stock = stock + data[i][j];
            }
            System.out.println("Stock of Branch " + (i+1) + ": " + stock);
        }
    }
}
```

```
Stock of Branch 1: 37
Stock of Branch 2: 38
Stock of Branch 3: 27
Stock of Branch 4: 33
```

2. code

```
public class Main {
    public static void main(String[] args)
    {
        int[] prices = {75_000, 50_000, 60_000};
        int[][] data =
                {
                        {10, 5, 15, 7},
                        {6, 11, 9, 12},
                        {2, 10, 10, 5},
                        {5, 7, 12, 9}
                };
        System.out.println("New information, some stocks on RoyalGarden 1 are decreased");
        System.out.println("Therefore RoyalGarden 1 income are decreased from " + ((data[0][0]*prices[0])+(data[1][0]*prices[1])+(data[3][0
        data[0][0] = data[0][0] - 1;
        data[1][0] = data[1][0] - 2;
        data[3][0] = data[3][0] - 5;
        System.out.println("become " + ((data[0][0]*prices[0])+(data[1][0]*prices[1])+(data[3][0]*prices[2])));
    }
}
```

```
New information, some stocks on RoyalGarden 1 are decreased
Therefore RoyalGarden 1 income are decreased from 1350000
become 875000
```

questions 4

1. code

```
public class Main
{
    static void fibonacciLoop()
    {
        int n1 = 0, n2 = 1, n3, i, count = 9;
        System.out.print(n1+" "+n2);
        for(i = 2; i < count; i++)
        {
            n3 = n1 + n2;
            System.out.print(" "+n3);
            n1 = n2;
            n2 = n3;
        }
    }
    public static void main(String[] args)
    {
        fibonacciLoop();
    }
}
```

```
0 1 1 2 3 5 8 13 21
```

2. code

```
public class Main
{
    static int n1 = 0, n2 = 1, n3 = 0;
    static void recursiveFibonacci(int count)
    {
        if(count > 0)
        {
            n3 = n1 + n2;
```

```
            n1 = n2;
            n2 = n3;
            System.out.print(" " + n3);
            recursiveFibonacci(count - 1);
        }
    }
    public static void main(String args[])
    {
        int count = 9;
        System.out.print(n1 + " " + n2);
        recursiveFibonacci(count - 2);
    }
}
```

```
0 1 1 2 3 5 8 13 21
```

assignment

1. code

```
public class Assignment1
{
    static int cost = 4_500;
    static double discount = 0.05;
    static int[] customer = {4, 15, 6, 11};
    public static void main(String[] args)
    {
        int total = 0;
        for (int weight : customer)
        {
            total += weight > 10 ? (weight*cost)*discount : weight*cost;
        }
        System.out.println("Total income is " + total);
    }
}
```

```
Total income is 50850
```

2. code

```
import java.util.Scanner;
public class Assignment2
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        double save = 1_000_000;
        System.out.print("input number of month: ");
        int month = sc.nextInt();
        double total = 0;
        for (int i = 0; i <= month; i++)
        {
            total = save + ((save * 0.02) * i);
        }
        System.out.println("Total saves after " + month + " month is " + total);
    }
}
```

```
input number of month: 25
Total saves after 25 month is 1500000.0
```

so customer balance will reach 1.5 million after 25 months

3. code

```
import java.util.Scanner;
public class Assignment3
```

```
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.print("Input the n number: ");
        int n = sc.nextInt();

        for (int i = 0; n > 0; i++)
        {
            if (i % 2 == 0 && i % 4 != 0)
            {
                System.out.print(i + " ");
                n--;
            }
        }
    }
}
```

```
Input the n number: 5
2 6 10 14 18
```

4. code

```
import java.util.Scanner;

public class Assignment4
{
    static Scanner sc = new Scanner(System.in);
    public static double area;
    public static void areaOfTriangle()
    {
        System.out.print("Input Height: ");
        int height = sc.nextInt();
        System.out.print("Input Side: ");
        int side = sc.nextInt();
        area = 1.0/2*height*side;
        System.out.println("Area of Triangle is: " + area + "\n");
    }

    public static void areaOfRectangle()
    {
        System.out.print("Input Height: ");
        int height = sc.nextInt();
        System.out.print("Input Width: ");
        int width = sc.nextInt();
        area = height*width;
        System.out.println("Area of Rectangle is: " + area + "\n");
    }

    public static void areaOfCircle()
    {
        System.out.print("Input Radius: ");
        int r = sc.nextInt();
        area = Math.PI*r*r;
        System.out.print("Area of Circle is: " + area + "\n");
    }

    public static void main(String[] args)
    {
        int menu = 0;
        do
        {
            System.out.println("Select Menu: ");
            System.out.println("1. Area of Triangle");
            System.out.println("2. Area of Rectangle");
            System.out.println("3. Area of Circle");
            System.out.println("0. Exit");
            menu = sc.nextInt();
            switch (menu)
            {
                case 1:
                    areaOfTriangle();
                    break;
                case 2:
                    areaOfRectangle();
                    break;
```

```
                case 3:
                    areaOfCircle();
                    break;
                case 0:
                    break;
                default:
                    System.out.println("Please Select Menu Correctly!");
            }
        }
        while (menu != 0);
    }
}
```

```
Select Menu:
1. Area of Triangle
2. Area of Rectangle
3. Area of Circle
0. Exit
1
Input Height: 5
Input Side: 4
Area of Triangle is: 10.0

Select Menu:
1. Area of Triangle
2. Area of Rectangle
3. Area of Circle
0. Exit
2
Input Height: 5
Input Width: 4
Area of Rectangle is: 20.0

Select Menu:
1. Area of Triangle
2. Area of Rectangle
3. Area of Circle
0. Exit
3
Input Radius: 7
Area of Circle is: 153.93804002589985
Select Menu:
1. Area of Triangle
2. Area of Rectangle
3. Area of Circle
0. Exit
0

Process finished with exit code 0
```