Java Programming

5. Control Statements

Ex12 if statement

```
public class If_Statement {
    public static void main(String[] args) {
    //defining an 'age' variable
    int age=23;
    //checking the age
    if(age>20){
        System.out.print("Age is greater than 20");
    }
  }
}
```

```
compile:
run:
Age is greater than 20BUILD SUCCESSFUL (total time: 0 seconds)
```

Ex13 if-else statement

```
public class IfElse_Statement {
    public static void main(String[] args) {
        int number=89;
        //Check if the number is divisible by 2 or not
        if(number%2==0){
            System.out.println("even number");
        }
        else
        {
            System.out.println("odd number");
        }
        //Ternary Operator
        /*String output =(number%2==0)?"even number":"odd number";
        System.out.println(output); */
    }
}
```

```
run:
odd number
BUILD SUCCESSFUL (total time: 1 second)
```

Ex14 if-else-if ladder

```
import java.util.Scanner;
public class IfElseIf_Statement {
    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        System.out.print("Input score: ");
        int score = in.nextInt();
        if(score<50){
            System.out.println("F");
        }
        else if(score>=50 && score<=54){
            System.out.println("D");
        }
        else if(score>=55 && score<=59){
            System.out.println("D+");
        }
        else if(score>=60 && score<=64){
            System.out.println("C");
        }
        else if(score>=65 && score<=69){
            System.out.println("C+");
        }
        else if(score>=70 && score<=74){
            System.out.println("B");
        }
        else if(score>=75 && score<=79){
            System.out.println("B+");
        }
        else if(score>=80 && score<=100){
            System.out.println("A");
        }
        else{
            System.out.println("Invalid!");
        }
    }
}
```

```
compile:
run:
Input score: 80
A
BUILD SUCCESSFUL (total time: 2 seconds)
```

Ex15 nested if statement

```
import java.util.Scanner;
public class NestedIf_Statement {
    public static void main(String[] args) {
        Scanner input1 = new Scanner(System.in);
        System.out.print("Input age: ");
        int age = input1.nextInt();
        Scanner input2 = new Scanner(System.in);
        System.out.print("Input weight: ");
        int weight = input2.nextInt();
        //applying condition on age and weight
        if(age>=20){
            if(weight>50){
                System.out.println("You are eligible to donate blood");
            } else{
                System.out.println("You are not eligible to donate blood");
            }
        } else{
          System.out.println("Age must be greater than 20");
        }
    }
}
```

```
compile:
run:
Input age: 28
Input weight: 89
You are eligible to donate blood
BUILD SUCCESSFUL (total time: 8 seconds)
```

Ex16 switch statement

```
import java.util.Scanner;
public class Switch_Statement {
   public static void main(String[] args) {
    Scanner input = new Scanner(System.in);
    System.out.print("Input Character: ");
    char ch = input.next().charAt(0);
    switch(ch)
    {
        case 'a':
            System.out.println("Vowel");
            break;
        case 'e':
            System.out.println("Vowel");
            break;
        case 'i':
            System.out.println("Vowel");
            break;
        case 'o':
            System.out.println("Vowel");
            break;
        case 'u':
            System.out.println("Vowel");
            break;
        case 'A':
            System.out.println("Vowel");
            break;
        case 'E':
            System.out.println("Vowel");
            break;
        case 'I':
            System.out.println("Vowel");
            break;
        case 'O':
            System.out.println("Vowel");
            break;
        case 'U':
            System.out.println("Vowel");
            break;
        default:
            System.out.println("Consonant");
    }
  }
}
```

```
compile:
run:
Input Character: e
Vowel
BUILD SUCCESSFUL (total time: 1 second)
```

Ex17 for loop

```
public class For_Loop {
    public static void main(String[] args) {
        //Set1
        for(int i=1;i<=10;i++){
        System.out.println(i);
        }
    }
}
        //Set2
        //loop of i
        /*for(int i=1;i<=3;i++){
        //loop of j
        for(int j=1;j<=3;j++){
                System.out.println(i+" "+j);
        }//end of i
      }//end of j
    }
}   */
        //Set3
        /*for(int row=1; row<=5; row++)
        {
            for(int emptySpace=6; emptySpace>=row; emptySpace--)
            {
                System.out.print(" ");
            }
            for(int star=1; star<=(2*row-1); star++)
            {
                System.out.print("*");
            }
            System.out.println(""); //new line
        }
    }
}*/
```

```
compile:
run:
1
2
3
4
5
6
7
8
9
10
BUILD SUCCESSFUL (total time: 1 second)
```

Ex18 while loop

```
public class While_Loop {
    public static void main(String[] args) {
        int i=1;
        while(i<=10){
        System.out.println(i);
        i++;
        }
    }
}
        //Set2
        //loop of i
        /*int i=1;
        while(i<=3){
        //loop of j
        int j=1;
        while(j<=3){
        {
                System.out.println(i+" "+j);
        }//end of j
        j++;
      }//end of i
      i++;
    }
  }
}*/
        //Set3
        /*int row=1;
        while(row<=5)
        {
            int emptySpace=6;
            while(emptySpace>=row)
            {
                System.out.print(" ");
            emptySpace--;
            }
            int star=1;
            while(star<=(2*row-1))
            {
                System.out.print("*");
            star++;
            }
            System.out.println(""); //new line
        row++;
        }
    }
}*/
```

```
compile:
run:
1
2
3
4
5
6
7
8
9
10
BUILD SUCCESSFUL (total time: 0 seconds)
```

Ex19 do-while loop

```
public class DoWhile_Loop {
    public static void main(String[] args) {
        //Set1
        int i=1;
        do{
            System.out.println(i);
        i++;
        }while(i<=10);
    }
}
        //Set2
        //loop of i
        /*int i=1;
        do{
            int j=1;
            do{
                System.out.println(i+" "+j);
                j++;
            }while(j<=3);
            i++;
        }while(i<=3);
    }
}*/
        //Set3
        /*int row=1;
        do
        {
            int emptySpace=6;
            do
            {
                System.out.print(" ");
            emptySpace--;
            }while(emptySpace>=row);

            int star=1;
            do
            {
                System.out.print("*");
            star++;
            }while(star<=(2*row-1));
            System.out.println(""); //new line
        row++;
        }while(row<=5);
    }
}*/
```

```
compile:
run:
1
2
3
4
5
6
7
8
9
10
BUILD SUCCESSFUL (total time: 2 seconds)
```

Ex20 break statement

```
public class Break_Statement {
    public static void main(String[] args) {
        //Set1
        //using for loop
        for(int i=1;i<=10;i++){
            if(i==6){
                //breaking the loop
                break;
            }
            System.out.println(i);
        }
    }
}
        //Set2
        /*Set2:
        for(int i=1;i<=3;i++){
            for(int j=1;j<=3;j++){
                if(i==2&&j==2){
                    //using break statement with label
                    break Set2;
                }
                System.out.println(i+" "+j);
            }
        }
    }
}*/
        //Set3
        //using while loop
        /*int i=1;
        while(i<=10){
            if(i==6){
            //using break statement
            i++;
            break;//it will break the loop
            }
            System.out.println(i);
            i++;
        }
    }
}*/
```

```
        //Set4
        //using do-while loop
        /*int i=1;
        do{
            if(i==6){
                //using break statement
                i++;
                break;//it will break the loop
            }
            System.out.println(i);
            i++;
        }while(i<=10);
    }
}*/
```

```
compile:
run:
1
2
3
4
5
BUILD SUCCESSFUL (total time: 1 second)
```

Ex21 continue statement

```
public class Continue_Statement {
    public static void main(String[] args) {
        //Set1
        //using for loop
        for(int i=1;i<=10;i++){
            if(i==6){
                //breaking the loop
                continue;
            }
            System.out.println(i);
        }
    }
}
        //Set2
        /*Set2:
        for(int i=1;i<=3;i++){
            Set_for2:
            for(int j=1;j<=3;j++){
                if(i==2&&j==2){
                    //using break statement with label
                    continue Set_for2;
                }
                System.out.println(i+" "+j);
            }
        }
    }
}*/
        //Set3
        //using while loop
        /*int i=1;
        while(i<=10){
            if(i==6){
                //using break statement
                i++;
                continue;//it will break the loop
            }
            System.out.println(i);
            i++;
        }
    }
}*/
```

```
        //Set4
        //using do-while loop
        /*int i=1;
        do{
            if(i==6){
               //using break statement
               i++;
               continue;//it will break the loop
            }
            System.out.println(i);
            i++;
        }while(i<=10);
    }
}*/
```

```
compile:
run:
1
2
3
4
5
7
8
9
10
BUILD SUCCESSFUL (total time: 1 second)
```

6. Objects and Classes in Java

Ex22 Object and Class Example: Initialization through reference

```
public class Student {
    //Defining Fields
    String id;
    String name;
    int age;
    public static void main(String[] args) {
        //Creating an Object of Student
        Student student1 = new Student();
        Student student2 = new Student();
        Student student3 = new Student();

        //Student1 Printing values of the object
        student1.id = "162090997";
        student1.name = "Javaman Loveprogramming";
        student1.age = 23;
        System.out.println(student1.id+" "+student1.name+" "+student1.age);

        //Student2 Printing values of the object
        student2.id = "162090998";
        student2.name = "Pythonman Loveprogramming";
        student2.age = 19;
        System.out.println(student2.id+" "+student2.name+" "+student2.age);

        //Student3 Printing values of the object
        student3.id = "162090999";
        student3.name = "JavaScriptman Loveprogramming";
        student3.age = 22;
        System.out.println(student3.id+" "+student3.name+" "+student3.age);
    }
}
```

```
compile:
run:
162090997 Javaman Loveprogramming 23
162090998 Pythonman Loveprogramming 19
162090999 JavaScriptman Loveprogramming 22
BUILD SUCCESSFUL (total time: 2 seconds)
```

Ex23 Object and Class Example: Initialization through method and constructor

```
class Student{
    //Defining Fields
    String id;
    String name;
    int age;
    void insertData(String i, String n, int a){
        id = i;
        name = n;
        age = a;
    }
    void displayData(){
        System.out.println(id+" "+name+" "+age);
    }
}
public class TestStudent {
    public static void main(String[] args) {
        //Creating an Object of Student
        Student student1 = new Student();
        Student student2 = new Student();
        Student student3 = new Student();

        //Student1 Printing values of the object
        student1.insertData("162090997", "Javaman Loveprogramming", 23);
        student2.insertData("162090998", "Pythonman Loveprogramming", 19);
        student3.insertData("162090999", "JavaScriptman Loveprogramming", 22);
        student1.displayData();
        student2.displayData();
        student3.displayData();
    }
}
```

```
compile:
run:
162090997 Javaman Loveprogramming 23
162090998 Pythonman Loveprogramming 19
162090999 JavaScriptman Loveprogramming 22
BUILD SUCCESSFUL (total time: 1 second)
```

Ex24 Object and Class Example: Rectangle

```
class Rectangle{
    int width;
    int length;
    void insert_input(int w, int l){
        width = w;
        length = l;
    }
    void calculateArea(){
        System.out.println(width*length);
    }
}
public class TestRectangle {
    public static void main(String[] args) {
        Rectangle obj_r1 = new Rectangle();
        Rectangle obj_r2 = new Rectangle();
        Rectangle obj_r3 = new Rectangle();
        obj_r1.insert_input(12, 9);
        obj_r2.insert_input(6, 98);
        obj_r3.insert_input(3, 16);
        obj_r1.calculateArea();
        obj_r2.calculateArea();
        obj_r3.calculateArea();
    }
}
```

```
compile:
run:
108
588
48
BUILD SUCCESSFUL (total time: 1 second)
```

Ex25 Object and Class Example: Anonymous object

```
public class Factorial {
    void fact(int n){
        int fact = 1;
        for(int i=1; i<=n; i++){
            fact = fact*i;
        }
        System.out.println("Factorial is "+fact);
    }
    public static void main(String[] args) {
        //Calling method with anonymous object
        new Factorial().fact(6);
    }
}
```

```
compile:
run:
Factorial is 720
BUILD SUCCESSFUL (total time: 1 second)
```

Ex26 Object and Class Example: Real World Example: Account

```
class AccountBank{
    int account_no;
    String name;
    float amount;
    //M1 Method to initialize object
    void insertData(int acc, String n, float amt){
        account_no = acc;
        name = n;
        amount = amt;
    }
    //M2 Deposit Method
    void deposit(float amt){
        amount = amount+amt;
        System.out.println(amt+" deposited");
    }
    //M3 Withdraw Method
    void withdraw(float amt){
        if(amount<amt){
            System.out.println("Insufficient Balance");
        }
        else{
            amount=amount-amt;
            System.out.println(amt+" withdraw");
        }
    }
    //M4 Check Balance Method
    void checkBalance(){
        System.out.println("Balance is: "+amount);
    }
    //M5 Method Display the Values of an Object
    void display(){
        System.out.println(account_no+" "+name+" "+amount);
    }
}
```

```
public class TestAccountBannk {
    public static void main(String[] args) {
        AccountBank customer1 = new AccountBank();
        customer1.insertData(9892838, "Javaman", 600000);
        customer1.display();
        customer1.checkBalance();
        customer1.deposit(300000);
        customer1.checkBalance();
        customer1.withdraw(23700);
        customer1.checkBalance();
    }
}
```

```
compile:
run:
9892838 Javaman 600000.0
Balance is: 600000.0
300000.0 deposited
Balance is: 900000.0
23700.0 withdraw
Balance is: 876300.0
BUILD SUCCESSFUL (total time: 1 second)
```