1. Array

```
public class TwoDimensionArray {
   public static void main(String[] args) {
      final int ROW = 3, COLUMN = 4
      int score[][] = new int[ROW][COLUMN]
      int data = 5;
      // Assigning values
      for (int i = 0; i < ROW; i++)
         for (int j = 0; j < COLUMN; j++) {
            score[i][j] = data
            data += 5

      }
      // Printing array
      System.out.println("Array");
      for (int i = 0; i < ROW; i++) {

         for (int j = 0; j < COLUMN; j++) {
            System.out.print("\t" + score[i][j]);
         }
         System.out.println();
      }
      // Printing array's transpose
      System.out.println("Transpose array");
      for (int i = 0; i < COLUMN; i++) {
         for (int j = 0; j < ROW; j++) {
            System.out.print("\t" + score[j][i]);
         }
```

```
            System.out.println()
        }
        // Find a summation and an average
        int sum = 0;
        for (int i = 0; i < COLUMN; i++)
            for (int j = 0; j < ROW; j++) {
                sum += score[j][i]

        }
        System.out.println("Array's sum = " + sum);
        System.out.println("Array's avg = " + (float)(sum) / (ROW * COLUMN));
    }
}
```

2. While

```
import java.util.Scanner;
public class ClassAverage {
        public static void main(String[] args) {
                Scanner input = new Scanner(System.in);
                System.out.println("Welcome to the grade book for")
                System.out.println("Java Programming!");

                int total;
                int gradeCounter;
                int grade;
                int average;
                total = 0;
                gradeCounter = 1;
```

```
            while (gradeCounter <= 10)
                System.out.print("Enter grade: ")
                grade = input.nextInt;
                total = total + grade;
                gradeCounter = gradeCounter + 1

            average = total / 10;
            System.out.printf("\nTotal of all 10 grades is %d\n", total);
            System.out.printf("Class average is %d\n", average)

}
```

3. try catch

```
import java.util.InputMismatchException;
import java.util.Scanner;
public class TestException1
   public static void main (String[] args) {
      Scanner reader = new Scanner(System.in)
      int index;
      int[] array = { 10, 20, 30, 40, 50 }
      try {
         System.out.print("Enter index: ");
         index = reader.nextInt()
         try {
            System.out.println("array[" + index + "] = " + array[index])
         } catch (IndexOutOfBoundsException ex)
            System.out.println("Exception occured: " + ex);
            System.out.println("You entered number exceeds the array size")
```

```
        }
      } catch (InputMismatchException ex) {
        System.out.println("Exception occurred: " + ex)
        System.out.println("You must specify an index in integer")
      }
   }
}
```

4. Switch

```
import java.util.Scanner;

public class Switch {
   public static void main(String[] args) {
      Scanner reader = new Scanner(System.in);
      System.out.print("What\'s floor do you want to go: ");
      char floor = reader.next().charAt(0);
      switch (floor) {
        case 'G'
          System.out.println("Elevator is going to ground floor.")
          break;
        case '1'
          System.out.println("Elevator is going to first floor.")
          break;
        case '2'
          System.out.println("Elevator is going to second floor.")
          break;
```

```
        case '3'
            System.out.println("Elevator is going to third floor.");
            break
        default
            System.out.println("Elevator don't know where to go.");

    }
}
```

5. String

```
import java.util.Scanner;
public class Constant {
    public static void main(String[] args)
        String name;
        int age;
        String sport
        Scanner reader = new Scanner(System.in);
        Scanner reader2 = new Scanner(System.in)
        System.out.print("What's your name?: ");
        name = reader.nextLine();
        System.out.print("How old are you?: ")
        age = reader2.nextInt;
        System.out.print("What's your favorite sport?: ")
```

```
        sport = reader.nextLine;
        System.out.println("Hello " + name)
        System.out.print("You was born in " + (2017 - age);
        System.out.println(" and loves to play " + sport)
    }
}
```

6. Method

```
import java.util.Scanner;
public class MethodParameters {
    public static void main(string[] args)
        Scanner reader = new Scanner(System.in);
        // call method
        open ();
        System.out.print("Enter music name to play: ");
        play(reader.nextLine()); // call method with 1 argument
        System.out.println("Where do you want to seek music to?");
        int min, sec;
        System.out.print("Enter minute: ");
        min = reader.nextInt();
        System.out.print("Enter second: ");
        sec = reader.nextInt
        seekTo(sec, min) // call method with 2 arguments
```

```
    }
    // no parameter method
    public static void open {
        System.out.println("Music player started.");
    }
    // method with one parameter
    public static void play (String name)
        System.out.println("Playing your music \" " + name + "\"")
    }
    // method with two parameters
    public static void seekTo (int sec, int min)
        System.out.println("Seek music to " + min + ":" + sec)
    }
}
```

7. Else-If

```
import java.util.Scanner;
public class ElseIf {
    public static void main(string[] args) {
        Scanner sn = new Scanner(System.in);
        System.out.println("\tScore Evaluation Program")
        System.out.print("Enter your score between 0 - 100: ")
```

```
        int score = sn.nextInt;
        if (score < 0 || score > 100)
           System.out.println("You must enter a correct score, try again later.");
        else {
           if (score >= 80) {
              System.out.println("Your score is excellent.");
              System.out.println("You grant grade S.");
            else if (score >= 60) {
              System.out.println("Your score is good.");
              System.out.println("You grant grade A.");
           }else if (score >= 40) {
              System.out.println("Your score is fair.");
              System.out.println("You grant grade B.");
           }else {
              System.out.println("Your score is poor.");
              System.out.println("You grant grade C.");

        }
     }
}
```

8. Access Modifiers

```
public class TestFruit {

    public static void main (String[] args) {

        Fruit fr = new Fruit;

        fr.name = "Grape";

        fr.flavor = "sour";

        fr.setColor("green");

        System.out.println("Fruit name: " + fr.name);

        System.out.println("Flavor: " + fr.flavor);

        System.out.println("Color: " + fr.getColor());


}

class Fruit {

    public String name;

    String flavor;

    private String color;

    public String getColor  {

        return color;

    }

    public void setColor (String c) {

        color = c;


}
```

9. Finally

```
import java.io.BufferedReader;
import java.io.File;
import java.io.FileNotFoundException;
import java.io.FileReader;
import java.io.IOException;
public class TestFileException {
   public static void main(String[] args) {
      File file = new File("file.txt")
      BufferedReader reader = null;
      try {
         reader = new BufferedReader(new FileReader(file);
         String text = null;
         while ((text = reader.readLine()) != null) {
            System.out.println(text);
         }
      } catch (FileNotFoundException e) {
         e.printStackTrace;
      } catch (IOException e) {
         e.printStackTrace();
      } finally {
         try {
            if (reader != null) {
```

```
            reader.close();
        }
      } catch (IOException e) {
      }

  }
}
```

10. Inheritance

```
class Artist extends Person {
  string genre;
  public Artist (string name, int age)
    this.name = name;
    this.age = age
  }
  public void playMusic  {
    System.out.println(name + " is playing " + genre + " music.")
  }
}
class Athlete extends Person {
  string sport
  public Athlete (String name, int age) {
    this.name = name;
```

```
        this.age = age;
    }
    public void playSport  {
        System.out.println(name + " is playing " + sport + ".")
    }
}
```