

SAE5

December 5, 2021

1 Short Assessed Exercise

2 Level –5–

2.1 –Esad Simsek –

2.2 –29/11/2021–

2.3 Version –1–

2.4 Summary of the Question

– Write a program that uses a for loop to ask the user to name 5 Olympians or Paralympians –

2.4.1 – Method `inputS` –

What it does – This method allows the user to input a string to a reply for a question –

Implementation (how it works) – Prints the message and assigns an answer to the variable and then returns the variable –

```
[1]: public static String inputS (String message)
    {
        String answer;
        Scanner scanner = new Scanner(System.in);
        System.out.println(message);
        answer = scanner.nextLine();
        return answer;
    }
```

Testing

```
[4]: inputS("Hello");
```

Hello

Hi

```
[4]: Hi
```

2.4.2 – Method inputI –

What it does – This method allows the user to input a integer to a reply for a question –

Implementation (how it works) – Prints the message and assigns an answer to the variable and then returns the variable –

```
[2]: public static int inputI (String message)
    {
        int answer;
        Scanner scanner = new Scanner(System.in);
        System.out.println(message);
        answer = scanner.nextInt();
        return answer;
    }
```

Testing

```
[7]: inputI(" What year were you born ?");
```

What year were you born ?

2003

```
[7]: 2003
```

2.4.3 – Method NameArray –

What it does – creates an array of a certain size that asks questions about Olympian/Paralympian –

Implementation (how it works) – Creates an array of a certain size given in method call. There is a for loop for the given size in method call and asks to name the Olympian/Paralympian–

```
[3]: public static String[] NameArray(int SIZE)
    {
        String [] a = new String[SIZE];
        for(int i = 0; i<SIZE; i++)
        {
            a [i] = inputS("Name Olympian/Paralympian " + (i+1) + "?");
        }
        return a;
    }
```

Testing

```
[17]: String [] names = NameArray(5);
```

Name Olympian/Paralympian 1?

Kadeena Cox
 Name Olympian/Paralympian 2?
 Laura Kenny
 Name Olympian/Paralympian 3?
 Mo Farah
 Name Olympian/Paralympian 4?
 Sarah Storey
 Name Olympian/Paralympian 5?
 Adam Peaty

2.4.4 – Method MedalArray –

What it does – creates an array of a certain size that asks questions about how many medals the Olympian/Paralympian has won –

Implementation (how it works) – Creates an array of a certain size given in method call. There is a for loop for the given size in method call and asks to give the number of medals the Olympian/Paralympian has won–

```
[4]: public static int[] MedalArray(int SIZE)
    {
        int [] a = new int[SIZE];
        for(int i = 0; i<SIZE; i++)
        {
            a [i] = inputI("How many medals did Olympian/Paralympian " +
            ↪+(i+1) + " win?");
        }
        return a;
    }
```

Testing

```
[18]: int [] medals = MedalArray(5);
```

How many medals did Olympian/Paralympian 1 win?

6

How many medals did Olympian/Paralympian 2 win?

6

How many medals did Olympian/Paralympian 3 win?

4

How many medals did Olympian/Paralympian 4 win?

How many medals did Olympian/Paralympian 5 win?

5

2.4.5 – Method 5 SportArray –

What it does – creates an array of a certain size that asks questions about the sport Olympian/Paralympian competed in –

Implementation (how it works) – Creates an array of a certain size given in method call. There is a for loop for the given size in method call and asks the sport the Olympian/Paralympian has competed in –

```
[5]: public static String[] SportArray(int SIZE)
    {
        String [] a = new String[SIZE];
        for(int i = 0; i<SIZE; i++)
        {
            a [i] = inputS("What sport did Olympian/Paralympian " + (i+1)+
↪ " compete in?");
        }
        return a;
    }
```

Testing

```
[19]: String [] sports = SportArray(5);
```

What sport did Olympian/Paralympian 1 compete in?

Running/Cycling

What sport did Olympian/Paralympian 2 compete in?

Cycling

What sport did Olympian/Paralympian 3 compete in?

Athletics

What sport did Olympian/Paralympian 4 compete in?

Cycling/Swimming

What sport did Olympian/Paralympian 5 compete in?

Swimming

2.4.6 – Method printAthleteInfo –

What it does – This method prints the details of the Olympian/Paralympian in inverse order –

Implementation (how it works) – The For Loop, loops for the given size in the method call and gives the details of the Olympian/Paralympian in reverse order –

```
[6]: public static void printAthleteInfo(String [] givenNames, int [] givenMedals,
    ↪String [] givenSports, int size)
    {
        for (int i = size-1; i>=0; i--)
        {
            System.out.println(givenNames[i] + ", " + givenMedals[i] + ", "
    ↪+ givenSports[i]);
        }
        return;
    }
```

Testing

```
[22]: printAthleteInfo(names, medals, sports, 5);
```

```
Adam Peaty, 5, Swimming
Sarah Storey, 28, Cycling/Swimming
Mo Farah, 4, Athletics
Laura Kenny, 6, Cycling
Kadeena Cox, 6, Running/Cycling
```

2.4.7 – MAIN Method Athelte_Name5 –

What it does – This is the main method that makes the program work –

Implementation (how it works) – Variables are declared and get initialized. Arrays are declared and assign the method to them to fill in the arrays with relevant information. The for loop adds the number of medals each athlete has won. Prints the average medals won by the athletes and calls a method to print the information about the athletes. –

```
[7]: public static void Athlete_Name5 ()
    {
        final int NO_OF_ATHLETE = 5;
        int total_medals = 0;
        String [] names = NameArray(NO_OF_ATHLETE);
        int [] medals = MedalArray(NO_OF_ATHLETE);
        String [] sports = SportArray(NO_OF_ATHLETE);
        for (int i = 0; i<NO_OF_ATHLETE; i++)
        {
            total_medals = total_medals + medals [i];
        }
        int avg = (int) (total_medals/NO_OF_ATHLETE);
        System.out.println("Between them they won an average of " + avg + "
    ↪medals each.");
        printAthleteInfo(names, medals, sports, NO_OF_ATHLETE);
    }
```

```
        return;  
    }
```

Testing

```
[8]: Athlete_Name5();
```

Name Olympian/Paralympian 1?

A

Name Olympian/Paralympian 2?

B

Name Olympian/Paralympian 3?

C

Name Olympian/Paralympian 4?

D

Name Olympian/Paralympian 5?

E

How many medals did Olympian/Paralympian 1 win?

2

How many medals did Olympian/Paralympian 2 win?

3

How many medals did Olympian/Paralympian 3 win?

1

How many medals did Olympian/Paralympian 4 win?

7

How many medals did Olympian/Paralympian 5 win?

2

What sport did Olympian/Paralympian 1 compete in?

CYcling

What sport did Olympian/Paralympian 2 compete in?

BAsketball

What sport did Olympian/Paralympian 3 compete in?

Tennis

What sport did Olympian/Paralympian 4 compete in?

Football

What sport did Olympian/Paralympian 5 compete in?

Swimming

Between them they won an average of 3 medals each.

E, 2, Swimming

D, 7, Football

C, 1, Tennis

B, 3, BASKETBALL

A, 2, CYCLING

2.4.8 Running the program

Run the following call to simulate running the complete program.

```
[8]: Athlete_Name5();
```

Name Olympian/Paralympian 1?

Kadeena Cox

Name Olympian/Paralympian 2?

LAura Kenny

Name Olympian/Paralympian 3?

Mo Farah

Name Olympian/Paralympian 4?

Sarah Storey

Name Olympian/Paralympian 5?

Adam Peaty

How many medals did Olympian/Paralympian 1 win?

6

How many medals did Olympian/Paralympian 2 win?

6

How many medals did Olympian/Paralympian 3 win?

4

How many medals did Olympian/Paralympian 4 win?

28

How many medals did Olympian/Paralympian 5 win?

5

What sport did Olympian/Paralympian 1 compete in?

Running/cycling

What sport did Olympian/Paralympian 2 compete in?

Cycling

What sport did Olympian/Paralympian 3 compete in?

Athletics

What sport did Olympian/Paralympian 4 compete in?

Cycling/Swimming

What sport did Olympian/Paralympian 5 compete in?

Swimming

Between them they won an average of 9 medals each.

Adam Peaty, 5, Swimming

Sarah Storey, 28, Cycling/Swimming

Mo Farah, 4, Athletics

LAura Kenny, 6, Cycling

Kadeena Cox, 6, Running/cycling

2.5 The complete program

This version will only compile here. To run it copy it into a file called initials.java on your local computer and compile and run it there.

```
[1]: // Esad Simsek
// 29/11/2021
// VERSION 1
// A program that uses a for loop to ask the user to name 5 Olympians or
↳Paralympians.

import java.util.Scanner;
class fiveOlympians
{
    // main method call
    public static void main (String [] a)
    {
        Athlete_Name5();
        System.exit(0);
    }

    public static String inputS (String message)
    {
        String answer;
        Scanner scanner = new Scanner(System.in);
        System.out.println(message);
        answer = scanner.nextLine();
    }
}
```



```

        return answer;
    }

    public static int inputI (String message)
    {
        int answer;
        Scanner scanner = new Scanner(System.in);
        System.out.println(message);
        answer = scanner.nextInt();
        return answer;
    }

    public static String[] NameArray(int SIZE)
    {
        String [] a = new String[SIZE];
        for(int i = 0; i<SIZE; i++)
        {
            a [i] = inputS("Name Olympian/Paralympian " + (i+1) + "?");
        }
        return a;
    }

    public static int[] MedalArray(int SIZE)
    {
        int [] a = new int[SIZE];
        for(int i = 0; i<SIZE; i++)
        {
            a [i] = inputI("How many medals did Olympian/Paralympian " +
↪(i+1) + " win?");
        }
        return a;
    }

    public static String[] SportArray(int SIZE)
    {
        String [] a = new String[SIZE];
        for(int i = 0; i<SIZE; i++)
        {
            a [i] = inputS("What sport did Olympian/Paralympian " + (i+1)+
↪" compete in?");
        }
        return a;
    }

    public static void printAthleteInfo(String [] givenNames, int []
↪givenMedals, String [] givenSports, int size)
    {
        for (int i = size-1; i>=0; i--)

```

```

    {
        System.out.println(givenNames[i] + ", " + givenMedals[i] + ", " + "
↪+ givenSports[i]);
    }
    return;
}
public static void Athlete_Name5 ()
{
    final int NO_OF_ATHLETE = 5;
    int total_medals = 0;
    String [] names = NameArray(NO_OF_ATHLETE);
    int [] medals = MedalArray(NO_OF_ATHLETE);
    String [] sports = SportArray(NO_OF_ATHLETE);
    for (int i = 0; i<NO_OF_ATHLETE; i++)
    {
        total_medals = total_medals + medals [i];
    }
    int avg = (int) (total_medals/NO_OF_ATHLETE);
    System.out.println("Between them they won an average of " + avg + "
↪medals each.");
    printAthleteInfo(names, medals, sports, NO_OF_ATHLETE);
    return;
}
}

```

END OF LITERATE DOCUMENT