

Pseudocode, Arrays and Random

Six-a-side beach soccer tournament

Write a one class program that divides players into two teams based on the birth month i.e. odd months go into one team and even months go into another team. Each team must be made up of three girls and three boys. The program randomly allocates a name to the team from a hardcoded list..

Input from the keyboard

1. Name of interested player
2. Gender of interested player
3. Month of birth e.g. 1 for January, 2 for February etc.

Processing

1. Gradually add interested players into the teams until they are full.
2. Allocate a name to the team.

Output

1. Print out the names of odd team with its allocated name
2. Print out the names of the even team with its allocated name

NOTE: If the even team is full, and the odd team is short of one boy, the program must reject any interested girls. It must also reject any interested players born in an even month. When a boy comes along who was born in an odd month it must accept him because then the two teams will be complete. The program can then be restarted for the next group of interested players.

On the next page is a possible solution written in pseudocode.

PseudoCode

Declare name as String

Declare gender as character

Declare month as integer

Declare evenTeamArray as array of String[6]

Declare oddTeamArray as array of String[6]

Declare monthEven, monthOdd as Boolean

Declare teamEvenBoys, teamEvenGirls as integer

Declare teamOddBoys, teamOddGirls as integer

Declare teamName as array of String[20] // holds the 20 possible team names

While teams are not full

 Display "Enter your name"

 Input name

 Display "Enter your gender"

 Input gender

 Display "Enter your month of birth (1 to 12)"

 Input month

 If month is even

 monthEven = true

 else

 monthOdd = true

 if monthEven

 if gender = "M" // M is male

 if teamEvenBoys is not full

 evenTeamArray <- name

 teamEvenBoys ++

 if gender = "F" // F is female

 if teamEvenGirls is not full

 evenTeamArray <- name

 teamEvenGirls ++

 if monthOdd

 if gender = "M" // M is male

 if teamOddBoys is not full

 oddTeamArray <- name

 teamOddBoys ++

 if gender = "F" // F is female

 if teamOddGirls is not full

 oddTeamArray <- name

 teamOddGirls ++

```
        monthEven <- false           // reset
        monthOdd  <- false           // reset

// end while loop

// Randomly allocate a name to each team
Declare myRandom1, myRandom2 as integer

myRandom1 <- random number from 1 to 20
myRandom2 <- random number from 1 to 20

// OUTPUT
display "Even Team:" + teamName[myRandom1]
for i <- 1 to 6
    display evenTeamArray[i]

display "Odd Team:" + teamName[myRandom2]
for i <- 1 to 6
    display oddTeamArray[i]
```

Java code

```
/*
 * Steve Eilertsen. Java code for Section Seven Algorithms and pseudocode
 * exercise for grade 11 and 12.
 * This code can be improved using classes with relevant methods but is fine
 * for this pseudocode exercise.
 */
package pseudocode;

import javax.swing.JOptionPane;

public class PseudocodeAndJavaExerciseGrade11And12
{
    public static void main(String[] args)
    {
        String name,genderString;
        char gender = 'z';    // initialize
        int month = 0;
        boolean monthOdd = false, monthEven=false;
        int teamEvenBoys = 0, teamEvenGirls = 0;
        int teamOddBoys = 0, teamOddGirls = 0;
        String [ ] evenTeamArray = new String[6];
        String [ ] oddTeamArray = new String[6];
        int evenTeamCounter = 0;
        int oddTeamCounter = 0;
        String [ ] teamName = new String[21];

        // Populate the teamName array. Don't want to use zero.
        teamName[1] = "Mercury";
        teamName[2] = "Venus";
        teamName[3] = "Mars";
        teamName[4] = "Jupiter";
        teamName[5] = "Saturn";
        teamName[6] = "Uranus";
        teamName[7] = "Neptune";
        teamName[8] = "Asteroid";
        teamName[9] = "Comet";
        teamName[10] = "Rhea";
        teamName[11] = "Callisto";
        teamName[12] = "Io";
        teamName[13] = "Europa";
        teamName[14] = "Ceres";
        teamName[15] = "Luna";
    }
}
```

```
teamName[16] = "Titan";  
teamName[17] = "Hyperion";  
teamName[18] = "Janus";  
teamName[19] = "Oberon";  
teamName[20] = "Ariel";
```

```
//INPUT via while loop  
while
```