MPL 5

December 14, 2021

1 Mini Project

2 Level –5–

2.1 –Esad Simsek –

2.2 –12/12/2021–

2.3 Version –1–

2.4 Summary of the Question

– Write a chat bot procedural program that can have realistic conversations with people about a specific topic –

2.4.1 – Input_S –

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 Input_S (String message)
{
    String answer;
    Scanner scanner = new Scanner(System.in);
    System.out.println(message);
    answer = scanner.nextLine();
    return answer;
}
```

Testing

[38]:
```
Input_S("Is everything alright ?");
```

```
Is everything alright ?
 yeah
```

[38]:
```
yeah
```

2.4.2 – Input_i –

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

Testing

[6]:
```
Input_i(" What year were you born ?");
```

```
 What year were you born ?
 2003
```

[6]: 2003

2.4.3 – Class filmType –

What it does – Creates a new class called filmType –

Implementation (how it works) – This class has string variables which store the type of the film and aa response to it –

[3]:
```
class filmType
{
    String FilmTypeName;
    String typereply;
}
```

2.4.4 – createArray –

What it does – An Array is created of a given size –

Implementation (how it works) – Creates an array of a certain size in a method call which a for loop is used that loops for the given size. –

[4]:
```
public static String[] createArray(String message, int SIZE)
    {
        String [] a = new String [SIZE];
```

```
        for(int i = 0; i<SIZE; i++)
        {
            a [i] = Input_S(message + (i+1) + "?");
        }

        return a;
    }
```

Testing

[14]:
```
int nrfilms = Input_i("Let's talk about your favourite films, how many films would you like to name?");
String[] favfilms = createArray("What's film nr", nrfilms);
```

```
Let's talk about your favourite films, how many films would you like to name?
 2
What's film nr1?
 Cars
What's film nr2?
 Toy Story
```

2.4.5 – printArray –

What it does – Prints the array –

Implementation (how it works) – For loop is used which loops for the given size. –

[5]:
```
public static void printArray(int SIZE, String[] a)
    {
        for(int i = 0; i<SIZE; i++)
        {
           System.out.println(i+1 + ". " + a[i]);
        }

        return;
    }
```

Testing

[18]:
```
System.out.println("Here is a list of the films you've named.");
printArray(nrfilms, favfilms);
```

```
Here is a list of the films you've named.
1. Cars
2. Toy Story
```

2.4.6 – Chatbot_Greeting –

What it does – Says hi and asks the user how they are –

Implementation (how it works) – prints a message and afterwards the input_S method is used to ask how the user is –

[6]:
```
public static void Chatbot_Greeting ()
    {
        System.out.println("Hi! I'm Chatbot.");
        Input_S("How are you?");
    }
```

Testing

[20]:
```
Chatbot_Greeting();
```

```
Hi! I'm Chatbot.
How are you?

 I am good
```

2.4.7 – Chatbot_Interests –

What it does – The chatbot prints its interest and asks what the user likes. –

Implementation (how it works) – Prints its interest. Input_S is used to ask a question to the user. –

[7]:
```
public static void Chatbot_Interests ()
    {
        System.out.println("I love to watch films and listen to music.");
        String Chatbot_interests = Input_S("What do you like?");
        System.out.println("So you like " + Chatbot_interests + "?");
    }
```

Testing

[13]:
```
Chatbot_Interests();
```

```
I love to watch films and listen to music.
What do you like?

 cars

So you like cars?
```

2.4.8 – CreateFilmType –

What it does – creates a new type of film with the information and the response that will be given by the chatbot. –

Implementation (how it works) – Using the record filmType it assign the given variables to a new record. –

[8]:
```
public static filmType createFilmType (filmType f, String F_typename, String␣
↪F_typereply)
    {
        f.typename = F_typename;
        f.typereply = F_typereply;

        return f;
    }
```

Testing

[22]:
```
filmType horror = new filmType();
            filmType romance = new filmType();
            filmType superhero = new filmType();
            createFilmType(horror, "Horror", "Horror is Scary!");
            createFilmType(romance, "Romance", "Romance is Boring");
            createFilmType(superhero, "Superhero", "Superhero films are the␣
↪best !!!");
```

[22]:
```
REPL.$JShell$13B$filmType@f0c271b
```

2.4.9 – Name_type –

What it does – Gets the name from the record –

Implementation (how it works) – This method returns the name from the record –

[9]:
```
public static String Name_type (filmType f)
    {
        return f.typename;
    }
```

Testing

[25]:
```
Name_type(romance);
```

[25]:
```
Romance
```

2.4.10 – Name_type –

What it does – Gets the name from the record –

Implementation (how it works) – This method returns the name from the record –

[10]:
```
public static String Reply_type (filmType f)
    {
        return f.typereply;
    }
```

Testing

[27]:
```
Reply_type(romance);
```

[27]:
```
Romance is Boring
```

2.4.11 – filmGenre –

What it does – Gives responses to certain films inputed by user –

Implementation (how it works) – An if else statement is used where if the given film type matches a name in the record it gives a response if it doesnt match it says that it doesnt watch that type of film. –

[11]:
```
public static void filmGenre (String FilmGenre, filmType horror, filmType␣
↪romance, filmType superhero)
    {
        if (FilmGenre.equals(Name_type(horror)))
        {
            System.out.println(Reply_type(horror));
        }
        else if (FilmGenre.equals(Name_type(romance)))
        {
            System.out.println(Reply_type(romance));
        }
        else if (FilmGenre.equals(Name_type(superhero)))
        {
            System.out.println(Reply_type(superhero));
        }
        else
        {
            System.out.println("I don't watch that type of film :(");
        }
    }
```

Testing

[30]:
```
filmGenre("Horror", horror, romance, superhero);
```

```
Horror is Scary!
```

2.4.12 – movies –

What it does – the chatbot asks the user their favourite movie –

Implementation (how it works) – Prints a string, Input_S is used to ask a question to the user and calls FIlm_type method and its record to get a reply. –

[12]:
```
public static void movies (filmType horror, filmType romance, filmType␣
↪superhero)
   {
       System.out.println("Let's talk about films");
       String Fav_film = Input_S("What's your favourite film genre?");
       filmGenre(Fav_film, horror, romance, superhero);
   }
```

Testing

[33]:
```
movies (horror, romance, superhero);
```

```
Let's talk about films
What's your favourite film genre?

 horror

I don't watch that type of film :(
```

2.4.13 – Movie_nr –

What it does – the chatbot asks the user their favourite movie and prints what the user has said–

Implementation (how it works) – Asks user hoe many movies they would like to name and calls createArray and print Array methods –

[13]:
```
public static void Movie_nr ()
    {
        int nrfilms = Input_i("Let's talk about your favourite films, how many␣
↪films would you like to name?");
        String[] favfilms = createArray("What is film nr ", nrfilms);
        System.out.println("These are the films you have named");
        printArray(nrfilms, favfilms);
    }
```

Testing

[35]:
```
Movie_nr();
```

```
Let's talk about your favourite films, how many films would you like to name?

 3
```

```
What is film nr 1?
 TOy STory
What is film nr 2?
 Cars
What is film nr 3?
 Batman
These are the films you have named
1. TOy STory
2. Cars
3. Batman
```

2.4.14 – NewChatBot –

What it does – the chatbot asks the user if they would like to chat again. –

Implementation (how it works) – uses the Input_S method to ask a question and returns a answer when y is true –

[14]:
```
public static boolean NewChatBot()
    {
        String answer = Input_S("Do you want to chat(y/n)?");
        return answer.equals("y");
    }
```

Testing

[31]:
```
NewChatBot();
```

```
Do you want to chat(y/n)?
 y
```

[31]: true

2.4.15 – chatbot –

What it does – This is the method that runs the program –

Implementation (how it works) – A while loop is used only when NewChatBot has a true value. This method creates record types and calls the previous methods to run the program and prints bye when the loop is exited. –

[15]:
```
public static void chatbot()
    {
        while(NewChatBot())
        {
```

```
            filmType horror = new filmType();
            filmType romance = new filmType();
            filmType superhero = new filmType();
            createFilmType(horror, "Horror", "Horror is Scary!");
            createFilmType(romance, "Romance", "Romance is Boring");
            createFilmType(superhero, "Superhero", "Superhero films are the␣
↪best !!!");

            Chatbot_Greeting();
            Chatbot_Interests();
            movies(horror, romance, superhero);
            Movie_nr();
            System.out.println("It was nice to speaking with you!");
        }
        System.out.println("Ok, time to go now. Bye!");
    }
```

Testing

[16]:
```
chatbot();
```

```
Do you want to chat(y/n)?

 n

Ok, time to go now. Bye!
```

2.4.16 Running the program

Run the following call to simulate running the complete program.

[43]:
```
chatbot();
```

```
Do you want to chat(y/n)?

 y

Hi! I'm Chatbot.
How are you?

 good

I love to watch films and listen to music.
What do you like?

 cars

So you like cars?
Let's talk about films
What's your favourite film genre?

 Romance
```

```
Romance is Boring
Let's talk about your favourite films, how many films would you like to name?

 1

What is film nr 1?

 Cars

These are the films you have named
1. Cars
It was nice to speaking with you!
Do you want to chat(y/n)?

 n

Ok, time to go now. Bye!
```

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.

[7]:
```
// Esad Simsek
// 12/12/2021
// VERSION 1
// Write a chat bot program that can have realistic conversations with people␣
 ↪about a specific topic

import java.util.Scanner; // Needed to make Scanner available

class filmType
{
    String typename;
    String typereply;
}

class chatbot
{
    public static void main (String [] a)
    {
        chatbot();
        System.exit(0);
    }
    public static String Input_S (String message)
    {
        String answer;
        Scanner scanner = new Scanner(System.in);

        System.out.println(message);
        answer = scanner.nextLine();
```

```
    return answer;
}

public static int Input_i (String message)
{
    int answer;
    Scanner scanner = new Scanner(System.in);

    System.out.println(message);
    answer = scanner.nextInt();

    return answer;
}

public static String[] createArray(String message, int SIZE)
{
    String [] a = new String [SIZE];

    for(int i = 0; i<SIZE; i++)
    {
        a [i] = Input_S(message + (i+1) + "?");
    }

    return a;
}

public static void printArray(int SIZE, String[] a)
{
    for(int i = 0; i<SIZE; i++)
    {
       System.out.println(i+1 + ". " + a[i]);
    }

    return;
}

public static void Chatbot_Greeting ()
{
    System.out.println("Hi! I'm Chatbot.");
    Input_S("How are you?");
}

public static void Chatbot_Interests ()
{
    System.out.println("I like to watch films and listen to music.");
    String interest = Input_S("What do you like?");
```

```
        System.out.println("So you like " + interest + "?");
    }

    public static filmType createFilmType (filmType f, String F_typename,␣
↪String F_typereply)
    {
        f.typename = F_typename;
        f.typereply = F_typereply;

        return f;
    }

    public static String Name_type (filmType f)
    {
        return f.typename;
    }

    public static String Reply_type (filmType f)
    {
        return f.typereply;
    }

    public static void filmGenre (String FilmGenre, filmType horror, filmType␣
↪romance, filmType superhero)
    {
        if (FilmGenre.equals(Name_type(horror)))
        {
            System.out.println(Reply_type(horror));
        }
        else if (FilmGenre.equals(Name_type(romance)))
        {
            System.out.println(Reply_type(romance));
        }
        else if (FilmGenre.equals(Name_type(superhero)))
        {
            System.out.println(Reply_type(superhero));
        }
        else
        {
            System.out.println("I don't watch that type of film :(");
        }
    }

    public static void movies (filmType horror, filmType romance, filmType␣
↪superhero)
    {
        System.out.println("Let's talk about films");
```

```
        String Fav_film = Input_S("What's your favourite film genre?");
        filmGenre(Fav_film, horror, romance, superhero);
    }

    public static void Movie_nr ()
    {
        int nrfilms = Input_i("Let's talk about your favourite films, how many␣
↪films would you like to name?");
        String[] favfilms = createArray("What is film nr ", nrfilms);
        System.out.println("These are the films you have named");
        printArray(nrfilms, favfilms);
    }

    public static boolean NewChatBot()
    {
        String answer = Input_S("Do you want to chat(y/n)?");
        return answer.equals("y");
    }

    public static void chatbot()
    {
        while(NewChatBot())
        {
            filmType horror = new filmType();
            filmType romance = new filmType();
            filmType superhero = new filmType();
            createFilmType(horror, "Horror", "Horror is Scary!");
            createFilmType(romance, "Romance", "Romance is Boring");
            createFilmType(superhero, "Superhero", "Superhero films are the␣
↪best !!!");

            Chatbot_Greeting();
            Chatbot_Interests();
            movies(horror, romance, superhero);
            Movie_nr();
            System.out.println("It was nice to speaking with you!");
        }
        System.out.println("Ok, time to go now. Bye!");
    }
}
```

END OF LITERATE DOCUMENT