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1 A Chat Bot (Mini Project 1)

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1.2 30/11/21

1.3 Version 5

1.3.1 How I have I met level 1 ?

I met level 1 by including keyboard input when the program asks for the user's name, the user has to input their name. Furthermore, I have included screen output as well as the program says hello back with the user's inputted name. I have three methods where the first method is chatbotinto which welcomes the user and asks for the users name. The second method is the chatbotoutro where it says bye to the user. The last method calls the other two methods said above.

1.3.2 How I have I met level 2?

I met level 2 by using variables, assignment and *expressions*. I have defined a method called askinterest and the chatbot tells its interest via the strings stored in local variables. The interests of the chatbot is printed via concatenation of local variables. Then the chatbot asks for the user's interests via System.out.println and Scanner scanner = new Scanner(System.in). Also the method returns the user's interest.

1.3.3 How I have I met level 3?

I met level 3 by following all the features and constructs from previous levels and creating decision statements by using if statements where dependant on the user's answer to the chatbot's question, the chatbot will reply. Furthermore I have created my own enterresponse method so it prevents repeating scanner scanner each time I want to have a user input so when I ask the user the question and get a response it will be done via enterresponse method. I also altered all my previous methods from level 1 to using enterresponse method as well therefore it reduces the lines of code repeated.

1.3.4 How I have I met level 4?

I met level 4 by following all the features and constructs from previous levels and by creating a record and a loop. Furthermore, the record is used in if statements where it is dependant on the user's answer to the chatbot's question, the chatbot will reply. The firstconversaion method is now in a while loop. Therefore, I had to alter all my previous methods by using an if statement in level 4 to exit out of the while loop in the firstconversation method. Finally the askfilm & enterresponse methods takes arguments and returns results which is explained below.

1.3.5 How I have I met level 5?

I met level 5 by following all the features and constructs from previous levels and by creating an array and using a array argument. Furthermore, I created accessor methods for the existing record. I created questions and stored them in an array. I have used methods including at least one that is passed and uses array arguments

1.3.6 How I have I met level 6?

I met level 6 by following all the features and constructs from previous levels and by adding a loop within in a loop. Also my program is now in a procedural programming style abstract data type where there are accessors methods and a create array method. Further details are explained in the (level 6) methods below

1.3.7 How I have I met level 7?

I met level 7 by following all the features and constructs from previous levels and by using a sort algorithm to sort the user's answer alphabetically to the question where the user has to name the 5 premier league players who are doing well.

1.3.8 How I have I met level 8?

I met level 7 by following all the features and constructs from previous levels and using both file input and file output. This is achieved by asking the user about what he/she least likes about the chatbot and this is written in to a file and what ever was written in the file is printed back to the user.

1.4 The literate program development

1.4.1 enterresponse (NEW) LEVEL 3

What it does asks the user whatever the questions, the person wants to ask and returns the answer. **#### Implementation** (how it works) I have altered all my previous methods to using the enterresponse method so it prevents repeating scanner scanner each time, I want to have a user input also it reduces the lines of code repeated. This is passing arguments into methods as each time the method is ran, it can be ran with different values as String question below can be any string typed in by the user each time the method is ran, the variable is created and passed in to the method.

```
[4]: public static String enterresponse (String question) // asks the user whatever
    ↳ the questions, the person wants to ask and returns the answer.
{
    String answer ;
    Scanner scanner = new Scanner(System.in);
    System.out.println(question);
    answer = scanner.nextLine();
    return answer;
}
```

1.4.2 testing

```
[2]: enterresponse("What happening?");
```

What happening?

NOTHING

```
[2]: NOTHING
```

1.4.3 chatbotintro ALTERED AT LEVEL 4

What it does welcomes the user and ask for the users name. ##### Implementation (how it works) I will create a method. Then using System.out.println, I will print out the welcome text. Then using System.out.println and Scanner scanner = new Scanner(System.in) in level 1 as you can see from my previous pdf. Then in level 3, I created my own enterresponse method so it prevents repeating scanner scanner each time, I want to have a user input so when I ask the user the question and get a response it will be done via enterresponse method. I have used a if statement in level 4 to exit out of the while loop in the firstconversation method.

```
[5]: public static String chatbotintro ()// welcomes the user and ask for the users name
    ↳name. Welcomes them with the user's name
{
    String name;
    System.out.println("Welcome to Haresh's Chat Bot made by Haresh
    ↳Ravindiran");
    name = enterresponse("Hello I am chatbot 2.0. Whats your name");
    if (name.equals("Goodbye") | name.equals("Got to go"))
    {
        System.exit(0);
    }

    System.out.println("Nice to meet you " + name);
    System.out.println(name + " is a nice name");

    return name;
} // END chatbotintro
```

Testing

```
[4]: chatbotintro ();
```

Welcome to Haresh's Chat Bot made by Haresh Ravindiran

Hello I am chatbot 2.0. Whats your name

abi

Nice to meet you abi

abi is a nice name

[4]: abi

1.4.4 chatoutro

What it does says bye to the user ##### Implementation (how it works) Then using System.out.println, I will print out the bye text.

```
[6]: // Says bye to the user
public static void chatbotoutro ()
{
    System.out.println("Sorry I go to go.");
    System.out.println("See you around!");

    return;
} // END chatbotoutro
```

Testing

```
[6]: // TEST CODE for chatbotoutro
chatbotoutro ();
```

Sorry I go to go.

See you around!

Testing

1.4.5 askinterest (NEW) LEVEL 2 (ALTERED AT LEVEL 4)

What it does The chatbot tells its interest and asks for the user's interest. ##### Implementation (how it works) The interests by the chatbot will be printed to the user by string variables with separate statements concatenated together. Then the chatbot asks for the user's interests via System.out.println and Scanner scanner = new Scanner(System.in). The user's interest will be printed to the user back with the concatenation of strings and the variable chatbot_askuser contained with the user's response. Later in level 3, I altered the user input by using the enterresponse method to reduce the number of lines repeated. I have used an if statement in level 4 to exit out of the while loop in the firstconversation method.

```
[7]: public static String askinterest ()// chatbot tells its interests to the user
    ↪and asks the user for his/hers interests
{
    String chatbot_interest_1;
    String chatbot_interest_2;
    String chatbot_askuser;

    chatbot_interest_1= ("I am interested in football.");
    chatbot_interest_2 = ("and basketball.");
    System.out.println(chatbot_interest_1 + " " + chatbot_interest_2);
    chatbot_askuser = enterresponse("What are your interests?");
```

```

    if (chatbot_askuser.equals("Goodbye") | chatbot_askuser.equals("Got to go"))
    {
        System.exit(0);
    }
    System.out.println("So you like " + chatbot_askuser);

    return chatbot_askuser;
} // END askinterest

```

1.4.6 testing

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

I am interested in football. and basketball.

What are your interests?

photography

So you like photography

```
[8]: photography
```

1.4.7 topics record (NEW LEVEL 4)

What it does This creates a new type called topics that we can use inside in the program later to store data. ##### Implementation (how it works) Declaring the data types for the genre and response.

```
[8]: class topics // creating a record for topics
{
    String film_genre;
    String film_response;
    String footballanswer_1;
    String footballanswer_2;
}
```

1.4.8 comedyfilm() (NEW LEVEL 4) (ALTERED AT LEVEL 5 for using accessor methods.)

What it does Creates a type of topics which is defined above and stores the genre name and the response for it. ##### Implementation (how it works) Stores the data for the genre and response.

```
[9]: public static topics comedyfilm()// Creates a type of topics which is defined
    ↳above and stores the genre name and the response for it.
{
    topics genre1 = new topics();
}
```

```

    genre1.film_genre = setgenre1(genre1 , "Comedy");
    genre1.film_response = setgenre1_newreply(genre1, "I literally love comedy_
↳films.");

    return genre1;
}

```

1.4.9 romancefilm() (NEW LEVEL 4) (ALTERED AT LEVEL 5 for using accessor methods.)

Creates a type of topics which is defined above and stores the genre name and the response for it.
 ##### Implementation (how it works) Stores the data for the genre and response.

```

[10]: public static topics romancefilm()//Creates a type of topics which is defined_
↳above and stores the genre name and the response for it.
{
    topics genre2 = new topics();
    genre2.film_genre = setgenre2(genre2, "Romance");
    genre2.film_response = setgenre2_newreply(genre2, "I absolutely like_
↳romance films.");

    return genre2 ;
}

```

1.4.10 askfilm (NEW) LEVEL 3 (ALTERED AT LEVEL 4)

What it does asks the user what kind of film they like and the chatbot replies dependant on the user's answer ##### Implementation (how it works) A variable userreply will be created which will store strings. The variable is will assigned to the enterresponse method call where the user will be asked what kind of film they like which is passed into the enterresponse method and returns the user's answer and it is stored in the userreply variable. If the userreply variable equals "Horror", it will print, it does not watch films. However if the user typed in "Action", the chatbot will reply saying it likes the action film and if the user types some other genre or some other word, the chatbot replies with a concatenation of the user response and set of strings. E.g if the user types in "thriller", the chatbot would response with "Ah I watch some thriller films". I have used if statements in level 4 to exit out of the while loop in the firstconversation method. Furthermore in level 4, I have stored the strings in a record and passed it in this method to check if it is true in the if statement, then the chatbot will reply before in level 3, I had the word directly written in the if statement and now the only difference is, it is stored in a record. This method takes arguments (topics genre1, topics genre2) and returns (genre1) results.

```

[11]: public static void askfilm(topics genre1, topics genre2) // asks the user about_
↳films and replies back dependant on the users answer
{

    String userreply;
    userreply= enterresponse("Whats your favourite kind of film?");
}

```

```

    if (userreply.equals("Horror"))
    {
        System.out.println("I never watch horror movies, they scare me.");
    }
    else if (userreply.equals("Action"))
    {
        System.out.println("I love action films.");
    }
    else if (userreply.equals(genre1.film_genre))
    {
        System.out.println(genre1.film_response);
    }
    else if (userreply.equals(genre2.film_genre))
    {
        System.out.println(genre2.film_response);
    }
    else if (userreply.equals("Goodbye") | userreply.equals("Got to go"))
    {
        System.exit(0);
    }
    else
    {
        System.out.println("Ah I watch some " + userreply + " films");
    }

return    ;

}

```

1.4.11 testing

```

[15]: topics genre1 = comedyfilm();
      topics genre2 = romancefilm();
      askfilm( genre1,  genre2);

```

Whats your favourite kind of film?

Comedy

I literally love comedy films.

1.5 setgenre1 (NEW LEVEL 5)

What it does A method to store a value in the film_genre field.

Implementation (how it works) The topics record of genre1 and a String new_genre1 is passed in. Genre1.film_genre is equated to the new_genre1 and returned.

```
[12]: public static String setgenre1(topics genre1, String new_genre1) //A method to
      ↪store a value in the film_genre field.
      {
          genre1.film_genre = new_genre1;
          return genre1.film_genre;
      }
```

1.6 setgenre1_newreply NEW LEVEL 5

What it does A method to store a value in the film_response field.

Implementation (how it works) The topics record of genre1 and a String newresponse_genre1 is passed in. Genre1.film_response is equated to the newresponse_genre1 and returned.

```
[13]: public static String setgenre1_newreply(topics genre1, String
      ↪newresponse_genre1)//A method to store a value in the film_response field.
      {
          genre1.film_response = newresponse_genre1;
          return genre1.film_response;
      }
```

1.7 setgenre2 NEW LEVEL 5

What it does A method to store a value in the film_genre field.

Implementation (how it works) The topics record of genre2 and a String new_genre2 is passed in. Genre2.film_genre is equated to the new_genre2 and returned.

```
[14]: public static String setgenre2(topics genre2, String new_genre2) //A method to
      ↪store a value in the film_genre field.
      {
          genre2.film_genre = new_genre2;
          return genre2.film_genre;
      }
```

1.8 setgenre2_newreply NEW LEVEL 5

What it does A method to store a value in the film_response field.

Implementation (how it works) The topics record of genre2 and a String newresponse_genre2 is passed in. Genre2.film_response is equated to the newresponse_genre2 and returned.

```
[15]: public static String setgenre2_newreply(topics genre2, String
      ↪newresponse_genre2) //A method to store a value in the film_response field.
      {
```



```

genre2.film_response = newresponse_genre2;
return genre2.film_response;
}

```

1.9 createarray NEW LEVEL 5 (ALTERED AT LEVEL 7)

What it does Creates an array, this method can now create any size of array as the size is passed in a argument when the method is used, before this method can only create an array of 9 elements in levels 5 and 6. Then I changed it to generic create array method. ##### Implementation (how it works) Declare the user's preferred array size and data type and return the array by its name.

```

[16]: public static String[] createarray(int size) // creates an array called
      ↪ questions and returns it.
{
    String questions [] = new String[size];
    return questions;
}

```

1.10 Random_number_generator NEW LEVEL 5 (Altered at level 7)

What it does Generates a random number ##### Implementation (how it works) Creates a type of random and a variable int random stores the random number which is returned so it can be used later in the program. I have added the int random by one as nothing is stored in the zero position. This number generator generates numbers between 1-3. In level 7, it generates numbers from 1-4 as a new question has been added.

```

[17]: public static int Random_number_generator() // number generator generates
      ↪ numbers between 1-4.
{
    Random number_generator = new Random();
    int random = 1 + number_generator.nextInt(4);

    return random;
}

```

1.11 choosequestions NEW LEVEL 5 (ALTERED AT LEVEL 6) (ALTERED AT LEVEL 7)

What it does Asks the user football questions and replies dependent on the user response and trigger words. ##### Implementation (how it works) The questions are stored in an array and the trigger words are stored in records. The records, array and the random number is passed in to the method. The method asks a random questions by using the random number generator and if the user types in a trigger word, the chatbot will reply in a defined way, if the chatbot does not recognize the input, its says "ah i see". In level 6 I added a while loop and it affected the number generated so I changed the way random number generator is used because when it was passed in and used in the while loop, the same random number was generated so I changed it so I called the random number generator in while loop and now it generates a different number each time in the

while loop. The while loop only can be stopped with a special sentinel value called is called “stop” which exits the inner loop and carries on with the main loop. In level 7 I have included a extra question where it sorts the user answer for the extra question in alphabetical order using my sort method. The extra question is stored in an another method however it only accesses it when the random number is 4 only. Also I have used a while loop to make sure it does not print the position 4 of the array as its null as I need the number 4 to to call the method with the extra question.

```
[18]: //Asks the user football questions and replies dependent on the user response
      ↪and trigger words
public static String[] choosequestions (String questions [], topics
      ↪footballquestion_1, topics footballquestion_2,String [] football_players )
{
String usereply2 = "";

System.out.println("As I like playing football, the next few questions will be
      ↪about football.");
questions[1] = ("Who is your favourite team in the premier league?");
questions[2] = ("What was the score of Watford vs Manchester United? (Enter
      ↪score in the format of 0-0)");
questions[3] = ("Who is your favourite player in the premier league? (Enter
      ↪Last Name only)");

while(!usereply2.equals("stop"))//// new level 6
{
    int random = Random_number_generator();

    if (random == 4)
    {
        specialfootballq(football_players);
    }
    while (questions[random] == null)
    {
        random = Random_number_generator();
    }
    usereply2 = enterresponse(questions[random]);
    if ( usereply2.equals(footballquestion_1.footballanswer_1))
    {
        System.out.println("I hate Manchester United, I support Chelesa and they
      ↪are at the top of league :) ");
    }
    else if(usereply2.equals(footballquestion_2.footballanswer_2))
    {
        System.out.println("Yes, you are right and it was a premier league match
      ↪against Watford. Also the manager was sacked the same night!");
    }
}
```

```

else if (usereply2.equals("Ronaldo"))
{
    System.out.println("Yes I agree he is the best player in the world!");
}
else if (usereply2.equals("Goodbye") | usereply2.equals("Got to go"))
{
    System.exit(0);
}
else if (usereply2.equals("stop"))
{
    System.out.println("Ah I see, you have had enough now.");
}
else
{
    System.out.println("Ah I see");
}
}
return football_players;
}

```

```

[52]: String questions [] = createarray(10);
String football_players [] = createarray(5);
topics footballquestion_1 = football_answerq1();
topics footballquestion_2 = football_answerq2();
choosequestions(questions,footballquestion_1,
    ↪footballquestion_2,football_players);

```

As I like playing football, the next few questions will be about football.
 What was the score of Watford vs Manchester United? (Enter score in the format
 of 0-0

4-1

Yes, you are right and it was a premier league match against Watford. Also the
 manager was sacked the same night!

Which players who currently doing well in the Premier League (enter only 5
 players (last name)

Enter player's 1 last name

Cavani

Enter player's 2 last name

Rashford

Enter player's 3 last name

Ronaldo

Enter player's 4 last name

Lingard

Enter player's 5 last name

De Gea

I have sorted the players names in alphabetical order below

Cavani

De Gea

Lingard

Rashford

Ronaldo

Who is your favourite team in the premier league?

stop

Ah I see, you have had enough now.

[52]: [Ljava.lang.String;@49992f65

1.11.1 football_answerq1 NEW LEVEL 5

What it does Creates a type of topics which is defined above and stores the football question's answer. ##### Implementation (how it works) Stores the data for the football question's answer.

```
[19]: public static topics football_answerq1()// Creates a type of topics which is
      ↪defined above and stores the football question's answer.
      {
        topics footballquestion_1 = new topics();
        footballquestion_1.footballanswer_1 = setq1answer(footballquestion_1 ,
      ↪"Manchester United");
        return footballquestion_1;
      }
```

1.11.2 football_answerq2 NEW LEVEL 5

What it does Creates a type of topics which is defined above and stores the football question's answer. ##### Implementation (how it works) Stores the data for the football question's answer.

```
[20]: public static topics football_answerq2()// Creates a type of topics which is
      ↪defined above and stores the football question's answer.
      {
        topics footballquestion_2 = new topics();
        footballquestion_2.footballanswer_2 = setq2answer(footballquestion_2 ,
      ↪"4-1");
        return footballquestion_2;
      }
```

1.12 setq1answer NEW LEVEL 5

What it does A method to store a value in the footballanswer_1 field.

Implementation (how it works) The topics record of footballquestion_1 and a String new_answer1 is passed in. footballquestion1.footballanswer_1 is equated to the new_answer1 and returned.

```
[21]: public static String setq1answer(topics footballquestion_1, String new_answer1)/  
      ↪ / A method to store a value in the footballanswer_1 field.  
      {  
        footballquestion_1.footballanswer_1 = new_answer1;  
        return footballquestion_1.footballanswer_1;  
      }
```

1.13 setq2answer NEW LEVEL 5

What it does A method to store a value in the footballanswer_2 field.

Implementation (how it works) The topics record of footballquestion_2 and a String new_answer2 is passed in. footballquestion2.footballanswer_2 is equated to the new_answer2 and returned.

```
[22]: public static String setq2answer(topics footballquestion_2, String new_answer2)/  
      ↪ / A method to store a value in the footballanswer_2 field.  
      {  
        footballquestion_2.footballanswer_2 = new_answer2;  
        return footballquestion_2.footballanswer_2;  
      }
```

1.14 Special football question NEW LEVEL 7

What it does Asks the user a question about the best players in the premier league.

Implementation (how it works) Asks the user a question about the best players in the premier league in a for loop and the answer is stored in a array and the array is sorted in alphabetical order by my sort method by passing in the array in the method call of my sort method.

```
[23]: public static String[] specialfootballq(String [] football_players) // Asks the  
      ↪ user a question about the best players in the premier league.  
      {  
        String userreply3;  
        Integer count = 1;  
  
        System.out.println("Which players who currently doing well in the Premier_  
        ↪ League (enter only 5 players (last name));  
        for ( int i =0; i<=4; i++)  
        {
```

```

        userreply3 = enterresponse("Enter player's " + count + " last name");
        if (userreply3.equals("Goodbye") | userreply3.equals("Got to go"))
        {

            System.exit(0);
        }
        count++;
        football_players[i]= userreply3;
    }

    sort(football_players);

    return football_players;
}

```

1.15 Sort NEW LEVEL 7

What it does This method sorts the array in alphabetical order where the special question's answer is stored in.

Implementation (how it works) My bubble sort method compares the two strings which is selected by the nested for loops where the outer for loop is kept sorting until the end of the arrays length (selects first player's name in the array) and the inner for loop, which second player's name in the array. Then in the inner for loop, there is an if statement where it compares the two player names using the compareto method (compared using the Unicode of each letter for each player's name) where if the two players name does not match it returns a positive number which is more than zero so the condition of the if statement is true, therefore it enters inside the if statement where the player's names are swapped ,where the first player's name (football_players[a]) is stored in the check variable, then the second player's name is assigned (football_players[a] = football_players[i]) . Finally, football_players[i] equalled to check and the swap is completed. This keeps happening until the inner for loop stops when it reaches the end of the array's length, then it prints the ordered alphabetical array to the user.

```

[24]: public static void sort (String[] football_players)
{

    String check;
    System.out.println("I have sorted the players names in alphabetical order,
↪below");
    for (int a = 0; a < football_players.length; a++) // for loop where the
↪loop selects one item in the array
    {
        for (int i = a + 1; i < football_players.length; i++) // another for
↪loop and selects another item in the array
        {

```

```

        // comparing the players entered and sorting it in alphabecal order
        if (football_players[i].compareTo(football_players[a]) < 0) //
→ compares the item in the array
        {
            //swap
            check = football_players[a]; // e.g first selected player's
→ name position is stored in check
            football_players[a] = football_players[i]; // e.g second
→ selected player's name is stored in football_players[a] where the first
→ player's name used to be.
            football_players[i] = check; // e.g first selected player is now
→ equated to the second player's position
            // swap complete
        }
    }
    System.out.println(football_players[a]);
}
}

```

1.15.1 testing for both methods above

```

[32]: String football_players [] = createarray(5);
      specialfootballq(football_players);

```

Which players who currently doing well in the Premier League (enter only 5
players (last name)

Enter player's 1last name

Fred

Enter player's 2last name

Maguire

Enter player's 3last name

Stones

Enter player's 4last name

Sterling

Enter player's 5last name

Ronaldo

I have sorted the players names in alphabetical order below

Fred

Maguire

Ronaldo

Sterling
Stones

[32]: [Ljava.lang.String;@3ddf2643

1.15.2 feedback (NEW LEVEL 8)

What it does Feedback from the user is saved to the file

Implementation (how it works) First I get my user's answer to the feedback question using enterresponse method. Then using PrintWriter and FileWriter I create a txt file where the user's feedback is stored. Then the user answer is stored in userreply4 which is printed in to the feedback txt.

```
[25]: public static void feedback () throws IOException // Feedback from the user is saved to the file
{
    String userreply4;
    System.out.println("Feedback Time");
    userreply4 = enterresponse("What do you least like of me?");
    PrintWriter Feedback = new PrintWriter(new FileWriter("Feedback.txt"));
    Feedback.println("Nothing, you are a great chatbot to talk to you.");
    Feedback.println("You are always talking to much");
    Feedback.println(userreply4);
    Feedback.close();
}
```

```
[4]: feedback()
```

Feedback Time

What do you least like of me?

Nothing, You are very friendly to talk to.

1.15.3 read (NEW LEVEL 8)

What it does Reads the feedback from the user in file

Implementation (how it works) Using BufferedReader and Filereade I read the Feednack.txt file where the user's feedback is stored. Then in a while loop where while the file is not empty it keeps reading the file and printed back to the terminal window.

```
[26]: public static void read() throws IOException // Reads the feedback from the user in file
{
    BufferedReader inputStream = new BufferedReader(new FileReader("Feedback.txt"));
    String answer = inputStream.readLine();
}
```



```

    System.out.println("Heres what previous people thought of me (including_
    ↳current person's feedback)");
    while(answer != null)
    {
        System.out.println(answer);
        answer = inputStream.readLine();
    }

    inputStream.close();
}

```

[6]: read()

Heres what previous people thought of me (including current person's feedback)
 Nothing, you are a great chatbot to talk to you.
 You are always talking to much
 Nothing, You are very friendly to talk to.

1.15.4 firstconversation (ALTERED AT LEVEL 4)(ALTERED AT LEVEL 5) (ALTERED AT LEVEL 7)

What it does Defines the different records of the type topic and array so it can be passed in to the methods. Starts the conversation via calling the chatbotintro,askinterest,askfilm and chatbotoutro methods and all the method are called in a while loop until a user types in a trigger word which exits the program which is defined in the other methods. The create arrays are now called with the size of arrays. I also added a new array in level 7 so I can stored the user's answer in array and sort using my sort method.

Implementation (how it works) I will use a while loop then use each name of the methods to call it.

E.g method();

[27]: *//All methods called in to a while loop*

```

public static void firstconversation() throws IOException
{
    String questions [] = createarray(10);
    String football_players [] = createarray(5);
    topics genre1 = comedyfilm();
    topics genre2 = romancefilm();
    topics footballquestion_1 = football_answerq1();
    topics footballquestion_2 = football_answerq2();

    while (true)
    {
        chatbotintro ();
        askinterest();
    }
}

```

```

askfilm( genre1, genre2);
choosequestions(questions,footballquestion_1,
    ↪footballquestion_2,football_players);
feedback();
read();
chatbotoutro();

}

} // END firstconversation

```

```

[ ]: // TEST CODE for firstconversation
firstconversation();

```

Welcome to Haresh's Chat Bot made by Haresh Ravindiran
Hello I am chatbot 2.0. Whats your name

Danny

Nice to meet you Danny
Danny is a nice name
I am interested in football. and basketball.
What are your interests?

playing hockey

So you like playing hockey
Whats your favourite kind of film?

Comedy

I literally love comedy films.
As I like playing football, the next few questions will be about football.
Which players who currently doing well in the Premier League (enter only 5
players (last name)
Enter player's 1 last name

Fred

Enter player's 2 last name

Rashford

Enter player's 3 last name

Lingard

Enter player's 4 last name

Varane

Enter player's 5 last name

Maguire

I have sorted the players names in alphabetical order below

Fred

Lingard

Maguire

Rashford

Varane

Who is your favourite team in the premier league?

stop

Ah I see, you have had enough now.

Feedback Time

What do you least like of me?

Too many football questions :(

Heres what previous people thought of me (including current person's feedback)

Nothing, you are a great chatbot to talk to you.

You are always talking to much

Too many football questions :(

Sorry I go to go.

See you around!

Welcome to Haresh's Chat Bot made by Haresh Ravindiran

Hello I am chatbot 2.0. Whats your name

Got to go

1.15.5 Running the program

Run the following call to simulate running the complete program.

```
[ ]: firstconversation ();
```

Welcome to Haresh's Chat Bot made by Haresh Ravindiran

Hello I am chatbot 2.0. Whats your name

Abi

Nice to meet you Abi

Abi is a nice name

I am interested in football. and basketball.

What are your interests?

baking cakes

So you like baking cakes

Whats your favourite kind of film?

Romance

I absolutely like romance films.

As I like playing football, the next few questions will be about football.

What was the score of Watford vs Manchester United? (Enter score in the format of 0-0)

4-1

Yes, you are right and it was a premier league match against Watford. Also the manager was sacked the same night!

Who is your favourite player in the premier league? (Enter Last Name only)

Ronaldo

Yes I agree he is the best player in the world!

Who is your favourite team in the premier league?

Manchester United

I hate Manchester United, I support Chelsea and they are at the top of league :)

Who is your favourite team in the premier league?

Spurs

Ah I see

Who is your favourite player in the premier league? (Enter Last Name only)

Son

Ah I see

Who is your favourite team in the premier league?

Manchester City

Ah I see

What was the score of Watford vs Manchester United? (Enter score in the format of 0-0)

4-1

Yes, you are right and it was a premier league match against Watford. Also the manager was sacked the same night!

Who is your favourite team in the premier league?

Spurs

Ah I see

Who is your favourite team in the premier league?

Arsenal

Ah I see

What was the score of Watford vs Manchester United? (Enter score in the format of 0-0)

0-0

Ah I see

What was the score of Watford vs Manchester United? (Enter score in the format of 0-0)

4-1

Yes, you are right and it was a premier league match against Watford. Also the manager was sacked the same night!

What was the score of Watford vs Manchester United? (Enter score in the format of 0-0)

7-1

Ah I see

Who is your favourite team in the premier league?

Manchester United

I hate Manchester United, I support Chelesa and they are at the top of league :)

Who is your favourite team in the premier league?

Chelesa

Ah I see

Which players who currently doing well in the Premier League (enter only 5 players (last name)

Enter player's 1 last name

Fred

Enter player's 2 last name

Son

Enter player's 3 last name

Sterling

Enter player's 4 last name

Sancho

Enter player's 5 last name

Rashford

I have sorted the players names in alphabetical order below

Fred

Rashford

Sancho

Son

Sterling

Who is your favourite player in the premier league? (Enter Last Name only)

stop

Ah I see, you have had enough now.

Feedback Time

What do you least like of me?

You are very friendly and there is no reason not to like you. :)

Heres what previous people thought of me (including current person's feedback)
 Nothing, you are a great chatbot to talk to you.
 You are always talking to much
 You are very friendly and there is no reason not to like you. :)
 Sorry I go to go.
 See you around!
 Welcome to Haresh's Chat Bot made by Haresh Ravindiran
 Hello I am chatbot 2.0. Whats your name

 Got to go

1.16 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.

```
[3]: // Haresh Ravindiran
// 30/11/21
// 5
// Write a chat bot procedural program that can have realistic conversations
// with people about a specific topic.
import java.util.Scanner; // imports scanner
import java.util.Random; // imports random
import java.io.*; // imports io

class topics {

    String film_genre ;
    String film_response;
    String footballanswer_1;
    String footballanswer_2;

    public static void main (String[] args) throws IOException
    {
        String questions [] = createarray(10); // creates an array of 9 elements
        // for questions
        String football_players [] = createarray(5); // creates an array of 4
        // elements for football_players
        topics genre1 = comedyfilm(); // assigns the record topic genre1 so that
        // the comedyfilm method which stores the genre and reply using accessor methods
        topics genre2 = romancefilm(); // assigns the record topic genre1 so that
        // the romantic film method which stores the genre and reply to the user using
        // accessor methods
        topics footballquestion_1 = football_answerq1(); // assigns the record
        // topic footballquestion_1 so that the football_answerq1 method which stores
        // the trigger response and reply to user using accessor methods
```

```

    topics footballquestion_2 = football_answerq2(); // assigns the record
    ↳topic footballquestion_2 so that the football_answerq2 method which stores
    ↳the trigger response and reply to user using accessor methods
    firstconversation(genre1, genre2,questions,footballquestion_1,
    ↳footballquestion_2, football_players); // all above defined is passed in to
    ↳the first conversation method
    System.exit(0);
}

    public static String enterresponse (String question)// asks the user
    ↳whatever the questions, the person wants to ask and returns the answer.
    {

        String answer;
        Scanner scanner = new Scanner(System.in);
        System.out.println(question);
        answer = scanner.nextLine();
        return answer;
    }

    public static String chatbotintro ()// welcomes the user and ask for the
    ↳users name. Welcomes them with the user's name
    {

        String name;
        System.out.println("Welcome to Haresh's Chat Bot made by Haresh
        ↳Ravindiran");
        name = enterresponse("Hello I am chatbot 2.0. Whats your name");
        if (name.equals("Goodbye")| name.equals("Got to go"))
        {
            System.exit(0);
        }

        System.out.println("Nice to meet you " + name);
        System.out.println(name + " is a nice name");

        return name;
    } // END chatbotintro

    // Says bye to the user
    public static void chatbotoutro ()
    {
        System.out.println("Sorry I go to go.");
        System.out.println("See you around!");

        return;
    } // END chatbotoutro

```

```

    public static String askinterest ()// chatbot tells its interests to the user and asks the user for his/hers interests
    {
        String chatbot_interest_1;
        String chatbot_interest_2;
        String chatbot_askuser;

        chatbot_interest_1= ("I am interested in football.");
        chatbot_interest_2 = ("and basketball.");
        System.out.println(chatbot_interest_1 + " " + chatbot_interest_2);
        chatbot_askuser = enterresponse("What are your interests?");
        if (chatbot_askuser.equals("Goodbye") | chatbot_askuser.equals("Got to go"))
        {
            System.exit(0);
        }
        System.out.println("So you like " + chatbot_askuser);

        return chatbot_askuser;
    } // END askinterest
    public static void askfilm(topics genre1, topics genre2) // asks the user about films and replies back dependant on the users answer
    {

        String userreply;
        userreply= enterresponse("Whats your favourite kind of film?");

        if (userreply.equals("Horror"))
        {
            System.out.println("I never watch horror movies, they scare me.");
        }
        else if (userreply.equals("Action"))
        {
            System.out.println("I love action films.");
        }
        else if (userreply.equals(genre1.film_genre))
        {
            System.out.println(genre1.film_response);
        }
        else if (userreply.equals(genre2.film_genre))
        {
            System.out.println(genre2.film_response);
        }
    }

```



```

    }
    else if (userreply.equals("Goodbye") | userreply.equals("Got to go"))
    {
        System.exit(0);
    }
    else
    {
        System.out.println("Ah I watch some " + userreply + " films");
    }

    return ;

}

public static topics comedyfilm()//Creates a type of topics which is
↪defined above and stores the genre name and the response for it.
{
    topics genre1 = new topics();
    genre1.film_genre = setgenre1(genre1 , "Comedy");
    genre1.film_response = setgenre1_newreply(genre1, "I literally love
↪comedy films.");

    return genre1;
}

public static topics romancefilm() //Creates a type of topics which is
↪defined above and stores the genre name and the response for it.
{
    topics genre2 = new topics();
    genre2.film_genre = setgenre2(genre2, "Romance");
    genre2.film_response = setgenre2_newreply(genre2, "I absolutely like
↪romance films.");

    return genre2 ;
}

public static String setgenre1(topics genre1, String new_genre1) //A method
↪to store a value in the film_genre field.
{
    genre1.film_genre = new_genre1;
    return genre1.film_genre;
}

public static String setgenre1_newreply(topics genre1, String
↪newresponse_genre1) //A method to store a value in the film_response field.
{
    genre1.film_response = newresponse_genre1;
    return genre1.film_response;
}

```

```

    public static String setgenre2(topics genre2, String new_genre2) //A
    ↪method to store a value in the film_genre field
    {
        genre2.film_genre = new_genre2;
        return genre2.film_genre;
    }

    public static String setgenre2_newreply(topics genre2, String
    ↪newresponse_genre2) //A method to store a value in the film_response field.
    {
        genre2.film_response = newresponse_genre2;
        return genre2.film_response;
    }

    public static String[] createarray(int size) // creates an array called
    ↪questions and returns it.
    {
        String questions [] = new String[size];
        return questions;
    }

    public static int Random_number_generator()// number generator generates
    ↪numbers between 1-4.
    {
        Random number_generator = new Random();
        int random = 1 + number_generator.nextInt(4);

        return random;
    }

    //Asks the user football questions and replies dependent on the user
    ↪response and trigger words

    public static String[] choosequestions (String questions [], topics
    ↪footballquestion_1, topics footballquestion_2,String [] football_players )
    {
        String usereply2 = "";

        System.out.println("As I like playing football, the next few questions will
        ↪be about football.");
        questions[1] = ("Who is your favourite team in the premier league?");
        questions[2] = ("What was the score of Watford vs Manchester United? (Enter
        ↪score in the format of 0-0)");
        questions[3] = ("Who is your favourite player in the premier league? (Enter
        ↪Last Name only)");

        while(!usereply2.equals("stop"))//// new level 6
        {
            int random = Random_number_generator();

```

```

    if (random == 4)
    {
        specialfootballq(football_players);
    }
    while (questions[random] == null)
    {
        random = Random_number_generator();
    }
    usereply2 = enterresponse(questions[random]);
    if ( usereply2.equals(footballquestion_1.footballanswer_1))
    {
        System.out.println("I hate Manchester United, I support Chelesa and
↳they are at the top of league :) ");
    }
    else if(usereply2.equals(footballquestion_2.footballanswer_2))
    {
        System.out.println("Yes, you are right and it was a premier league
↳match against Watford. Also the manager was sacked the same night!");
    }
    else if (usereply2.equals("Ronaldo"))
    {
        System.out.println("Yes I agree he is the best player in the world!");
    }
    else if (usereply2.equals("Goodbye")| usereply2.equals("Got to go"))
    {
        System.exit(0);
    }
    else if (usereply2.equals("stop"))
    {
        System.out.println("Ah I see, you have had enough now.");
    }
    else
    {
        System.out.println("Ah I see");
    }
}

return football_players;
}

public static topics football_answerq1()// Creates a type of topics which
↳is defined above and stores the football question's answer.
{
    topics footballquestion_1 = new topics();
    footballquestion_1.footballanswer_1 = setq1answer(footballquestion_1 ,
↳"Manchester United");
}

```

```

        return footballquestion_1;
    }
    public static topics football_answerq2() // Creates a type of topics which
    ↪ is defined above and stores the football question's answer.
    {
        topics footballquestion_2 = new topics(); // A method to store a value
    ↪ in the footballanswer_1 field.
        footballquestion_2.footballanswer_2 = setq2answer(footballquestion_2 ,
    ↪ "4-1");
        return footballquestion_2;
    }
    public static String setq1answer(topics footballquestion_1, String
    ↪ new_answer1) //A method to store a value in the footballanswer_1 field.

    {
        footballquestion_1.footballanswer_1 = new_answer1;
        return footballquestion_1.footballanswer_1;
    }
    public static String setq2answer(topics footballquestion_2, String
    ↪ new_answer2) //A method to store a value in the footballanswer_2 field.

    {
        footballquestion_2.footballanswer_2 = new_answer2;
        return footballquestion_2.footballanswer_2;
    }
    public static String[] specialfootballq(String [] football_players) // Asks
    ↪ the user a question about the best players in the premier league.
    {
        String userreply3;
        Integer count = 1;
        System.out.println("Which players who currently doing well in the
    ↪ Premier League (enter only 5 players (last name));

        for ( int i =0; i<=4; i++)
        {
            userreply3 = enterresponse("Enter player's " + count + "last name");
            if (userreply3.equals("Goodbye")| userreply3.equals("Got to go"))
            {

                System.exit(0);
            }
            count++;
            football_players[i]= userreply3;
        }
        sort(football_players);
    }

```

```

        return football_players;
    }

    public static void sort (String[] football_players)
    {

        String check;
        System.out.println("I have sorted the players names in alphabetical_
↪order below");
        for (int a = 0; a < football_players.length; a++) // for loop where the_
↪loop selects one item in the array
        {
            for (int i = a + 1; i < football_players.length; i++) // another_
↪for loop and selects another item in the array
            {
                // comparing the players entered and sorting it in alphabecal order
                if (football_players[i].compareTo(football_players[a]) < 0) //
↪compares the item in the array
                {
                    //swap
                    check = football_players[a]; // e.g first selected player's_
↪name position is stored in check
                    football_players[a] = football_players[i]; // e.g second_
↪selected player's name is stored in football_players[a] where the first_
↪player's name used to be.
                    football_players[i] = check; // e.g first selected player_
↪is now equated to the second player's position
                    //swap complete
                }
            }
            System.out.println(football_players[a]);
        }

    }

    public static void feedback () throws IOException // Feedback from the user_
↪is saved to the file
    {
        String userreply4;
        System.out.println("Feedback Time");
        userreply4 = enterresponse("What do you least like of me?");
        if (userreply4.equals("Goodbye") | userreply4.equals("Got to go"))
        {

            System.exit(0);
        }
    }
}

```

```

    }
    PrintWriter Feedback =new PrintWriter(new FileWriter("Feedback.txt"));
    Feedback.println("Nothing, you are a great chatbot to talk to you.");
    Feedback.println("You are always talking to much");
    Feedback.println(userreply4);
    Feedback.close();

}

public static void read() throws IOException
{
    BufferedReader inputStream = new BufferedReader(new FileReader("Feedback.
↪txt")); // Reads the feedback from the user in file
    String answer = inputStream.readLine();
    System.out.println("Heres what previous people thought of me (including
↪current person's feedback)");
    while(answer != null)
    {
        System.out.println(answer);
        answer = inputStream.readLine();
    }

    inputStream.close();
}

public static void firstconversation(topics genre1, topics genre2,String []
↪questions, topics footballquestion_1, topics footballquestion_2, String []
↪football_players) throws IOException
{

    while (true)
    {
        chatbotintro ();
        askinterest();
        askfilm( genre1, genre2);
        choosequestions(questions,footballquestion_1,
↪footballquestion_2,football_players);
        feedback();
        read();
        chatbotoutro();

    }

} // END firstconversation
}

```

END OF LITERATE DOCUMENT