



## Tutorial #4

### Program Design

**Instructions:** Between 1964 to 1966 MIT professor Joseph Weizenbaum developed a computer program called ELIZA that was a simulation of a psychotherapist. Using almost no information about human thought or emotion, ELIZA sometimes provided a startlingly human-like interaction.

One implementation of it is available at: <http://www.chayden.net/eliza/Eliza.html>.

In the following page I have a typical transcript page of a conversation between ELIZA and a real user.

In the next page is a rough draft of a pseudocode description of how ELIZA works, what I want you to do is build a flowchart based on the pseudocode on page 3.

You can draw the flowchart on paper and take a photo, or use a drawing tool (or powerpoint) and do a printscreen.

**Submission:** In the same Word document you have with all your labs and tutorials:

PROGRAM-DESIGN-PORTFOLIO.DOCX (or .DOC)

add this tutorial in, and the names of the people in your group, if you did it in a group.

e-mail your document to [Damian.Gordon@dit.ie](mailto:Damian.Gordon@dit.ie) with a subject heading of PROGRAM DESIGN TUTORIAL #4 and in the message of your e-mail please let me know your full name, your student number, the name of your programme, the programme code, the name of the module, the year you are in (first year), and your assignment.

**PLEASE NOTE: If you do not have the correct subject heading on your e-mail, or the correct filename, your submission WILL be rejected.**

**Marking:** Please note, this tutorial is due for submission today at the end of this session. Each of these tutorials contributes to your final result in this module, so it's best to get the earlier ones done as well as you can, because as the labs continue on they will get harder, so you might as well pick up the easy marks early on.

Men are all alike.

IN WHAT WAY ?

They're always bugging us about something or other.

CAN YOU THINK OF A SPECIFIC EXAMPLE?

Well, my boyfriend made me come here.

YOUR BOYFRIEND MADE YOU COME HERE

He says I'm depressed much of the time.

I AM SORRY TO HEAR YOU ARE DEPRESSED

It's true. I am unhappy

DO YOU THINK COMING HERE WILL HELP YOU NOT TO BE UNHAPPY

I need some help, that much seems certain.

WHAT WOULD IT MEAN TO YOU IF YOU GOT SOME HELP

Perhaps I could learn to get along with my mother.

TELL ME MORE ABOUT YOUR FAMILY

My mother takes care of me.

WHO ELSE IN YOUR FAMILY TAKES CARE OF YOU

My father.

YOUR FATHER

You are like my father in some ways.

WHAT RESEMBLANCE DO YOU SEE

You are not very aggressive but I think you don't want me to notice that.

WHAT MAKES YOU THINK I AM NOT VERY AGGRESSIVE

You don't argue with me.

WHY DO YOU THINK I DON'T ARGUE WITH YOU

You are afraid of me.

DOES IT PLEASE YOU TO BELIEVE I AM AFRAID OF YOU

My father is afraid of everybody.

WHAT ELSE COMES TO YOUR MIND WHEN YOU THINK OF YOUR FATHER

Bullies.

DOES THAT HAVE ANYTHING TO DO WITH THE FACT THAT YOUR BOYFRIEND MADE YOU COME HERE

*"Study hard what interests you the most in the most undisciplined, irreverent and original manner possible." - Richard P. Feynman*

A very simplified pseudocode version of ELIZA would work as follows:

PROGRAM Eliza:

```
    Print "Hi, Welcome, my name is Eliza.";

    Read in first user input; /* Assume it's hello */

    Print "So, tell me what seems to be the trouble?";

    WHILE (user input != "Goodbye.")

        DO Read in user input;

        Print "Tell me more.";

        Read in user input;

        IF (user input != "Goodbye.")

            THEN Print "Can you give me a specific example?";

                Get user input;

                Print "Why do you think"+Input+"is the case?";

        ENDIF;

    ENDWHILE;

    Print "Goodbye.";

END.
```

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