Islamic University of Technology, Bangladesh (IUT)

Project CSE-4271

Title : *Mini OS*

Course : CSE-4271

Course Teacher : *Tanjila Alam Sathi, Lecturer, CSE*
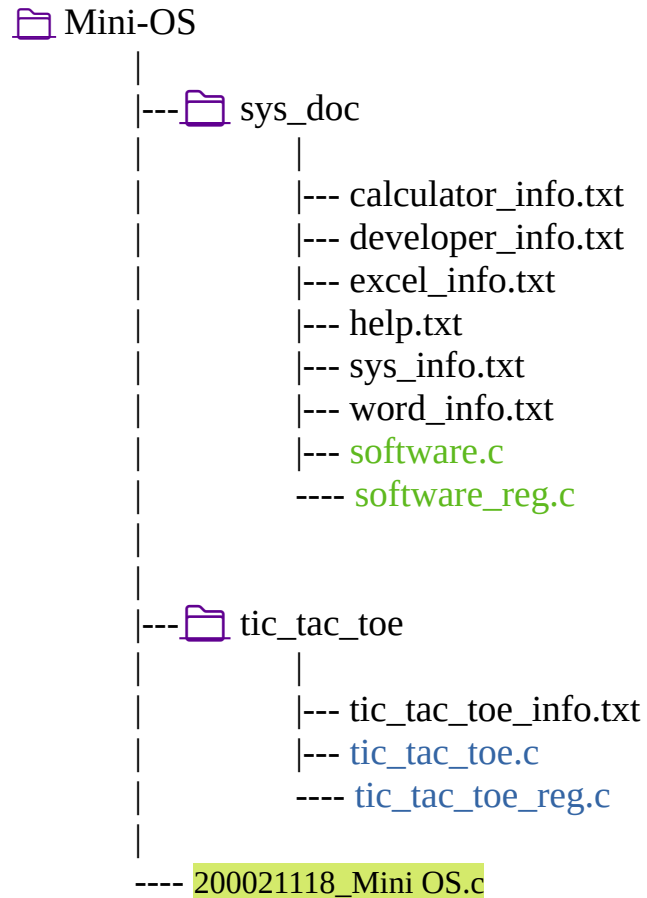
◆ **Submited by**

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Section : *A*
Session : *2020-2021*
**Sub. Date** : *28/04/2022*

Project link: Github

How to build & run

File structure :

📁 Mini-OS
```
|
|---📁 sys_doc
|        |
|        |--- calculator_info.txt
|        |--- developer_info.txt
|        |--- excel_info.txt
|        |--- help.txt
|        |--- sys_info.txt
|        |--- word_info.txt
|        |--- software.c
|        ---- software_reg.c
|
|
|---📁 tic_tac_toe
|        |
|        |--- tic_tac_toe_info.txt
|        |--- tic_tac_toe.c
|        ---- tic_tac_toe_reg.c
|
---- 200021118_Mini OS.c
```

Build & run:

      1) open the file "**200021118_Mini OS.c**" using *Code::Blocks software.*
      2) Then build and run the program.
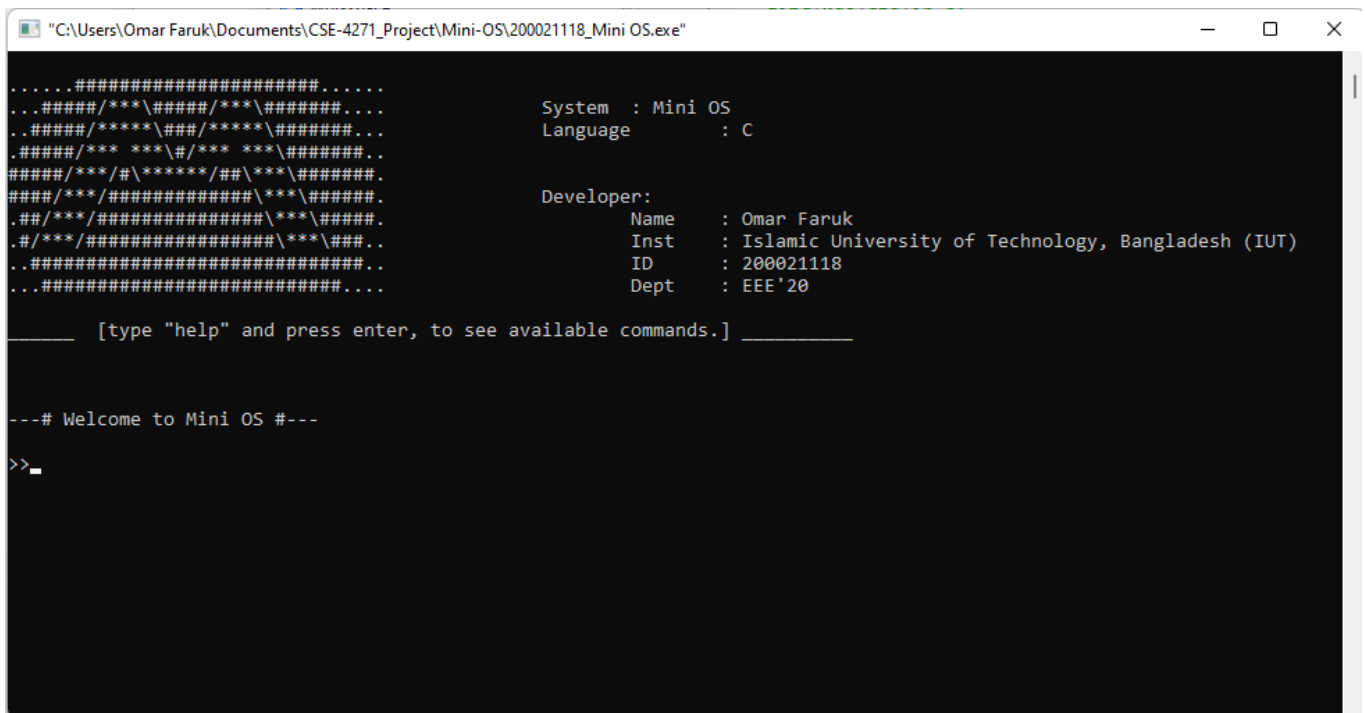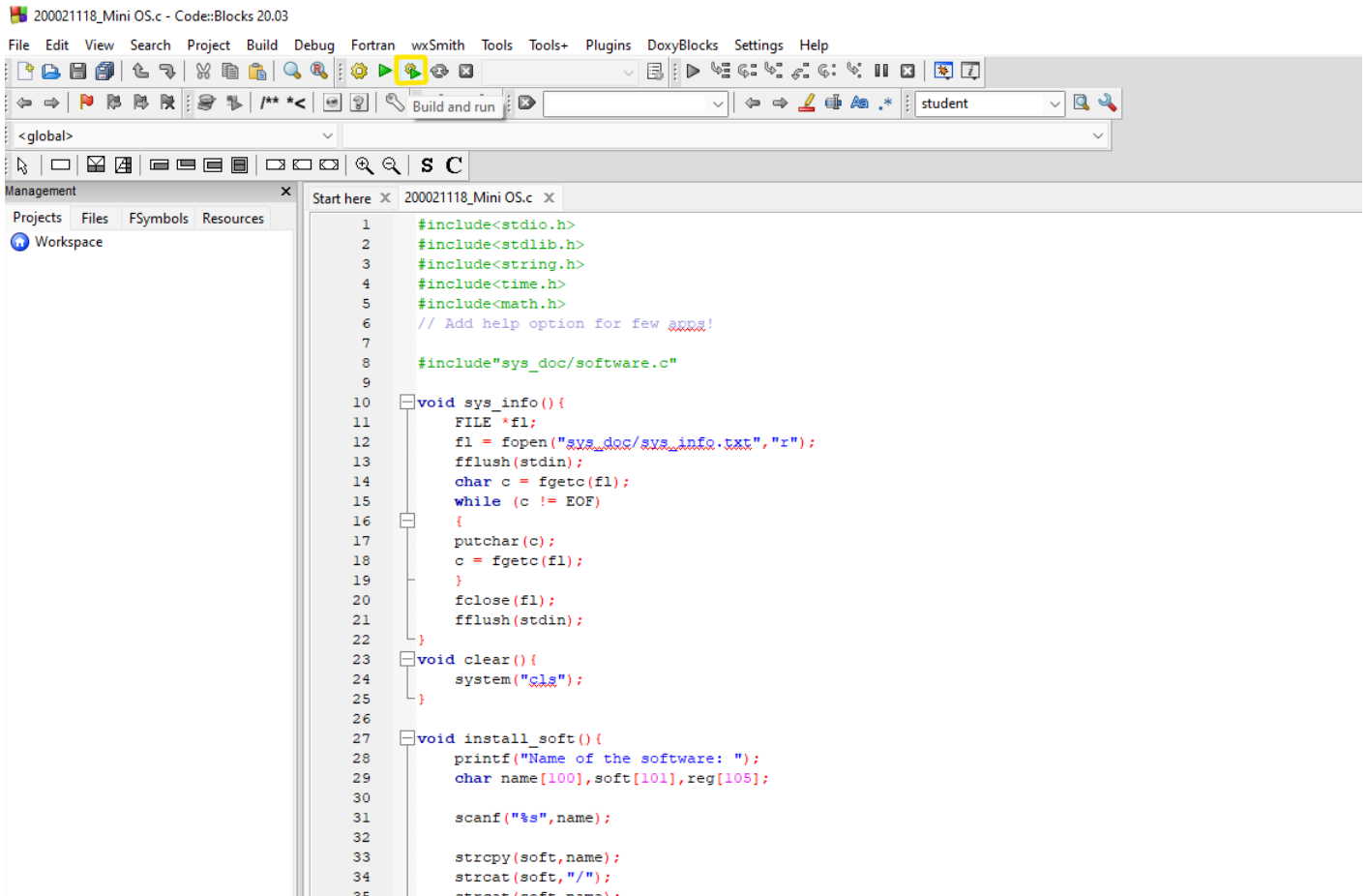
About Mini OS

- Mini OS is program based on C , that simulates an operating system.

- It's interface is similar to *Terminal Based Linux Operating Systems.*

- This program takes string input as **commands**.

- Softwares for Mini OS is used as ***user defined functions*** , which are in ***software.c (sys_doc/software.c)*** file.

- Input **commands** are compared with predefined conditions . If the condition is fulfilled then if's corresponding ***function*** is called. These conditions are in ***software_reg.c (sys_doc/software_reg.c)*** file.

- ***"software.c"*** & ***"software_reg.c"*** files are ***include***d using ***pre-processor of c programming.***

- ***File management*** has be used to write and read files. Various designs and datas has be taken from files. Some applications of ***Mini OS*** are based on ***File management*** (*like* ***sysinfo , word , excel , install***) .

- **Tic Tac Toe** game is created using *2 dimensional array* and boolean ***conditions (if , else if , else) .***

- ***Loops (for , while , do while)*** has been used in this project various times to repeat the program activity and to keep the program on until some kind of ***ending command*** comes.

- ***Pointers*** are also used in some places.

<u>*Commands*</u>

- *help*
- *sysinfo*
- *clean/clear/cls*
- *exit*
- *calculator*
- *time*
- *word*
- *excel*
- *tic_tac_toe*
- *install*

● **help**
   *This command will will show available commands.
      1) Type "help" then press enter.


```
  ......#######################......                   System  : Mini OS
  ...#####/***\#####/***\#######....                    Language       : C
  ..#####/*****\###/*****\#######...
  .#####/*** ***\#/*** ***\#######..
  #####/***/#\******/##\***\#######.                    Developer:
  ####/***/###########\***\######.                           Name    : Omar Faruk
  .##/***/##############\***\#####.                          Inst    : Islamic University of Technology, Bangladesh (IUT)
  .#/***/###############\***\###..                           ID      : 200021118
  ..#########################.. .                            Dept    : EEE'20
  ...#######################....

  _____   [type "help" and press enter, to see available commands.] _____


  ---# Welcome to Mini OS #---

  >>help
  Command: help

  This is your help.

  help                             ---to see available commands.

  sysinfo                          ---to see the system information.

  clean/clear/cls                  ---to clean the texts in the terminal

  exit                             ---to shut down the program.

  calculator                       ---to open calculator software.

  time                             ---to see date & time.

  word                             ---to open word software. (a text writting software)

  excel                            ---similer to word software.

  tic_tac_toe                      ---to open Tic Tac Toe game. (a two player board game)

  install                          ---install new software.
                                        [don't use until you know what to do. It will not work for pre-build program.
   It will need to be re-build to use the changes.]


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       Inst   : Islamic University of Technology, Bangladesh (IUT)    Dept    : EEE'20
  _____


  >>
```

● sysinfo

*This command will show few information about Mini OS.

1) type "sysinfo" then press enter.

● **clean/clear/cls**
   ***This command will clear the terminal.**

   ***after the command**

● exit

*This command will *shut down* the *Mini OS*.

```
 "C:\Users\Omar Faruk\Documents\CSE-4271_Project\Mini-OS\200021118_Mini OS.exe"          —    □    ×

>>exit
Command: exit


******# Shutting Down You Mini OS. #*******

Process returned 1 (0x1)    execution time : 402.652 s
Press any key to continue.
```

● calculator

*This command will open the *Calculator software*.
    1) type "calculator" then press enter.
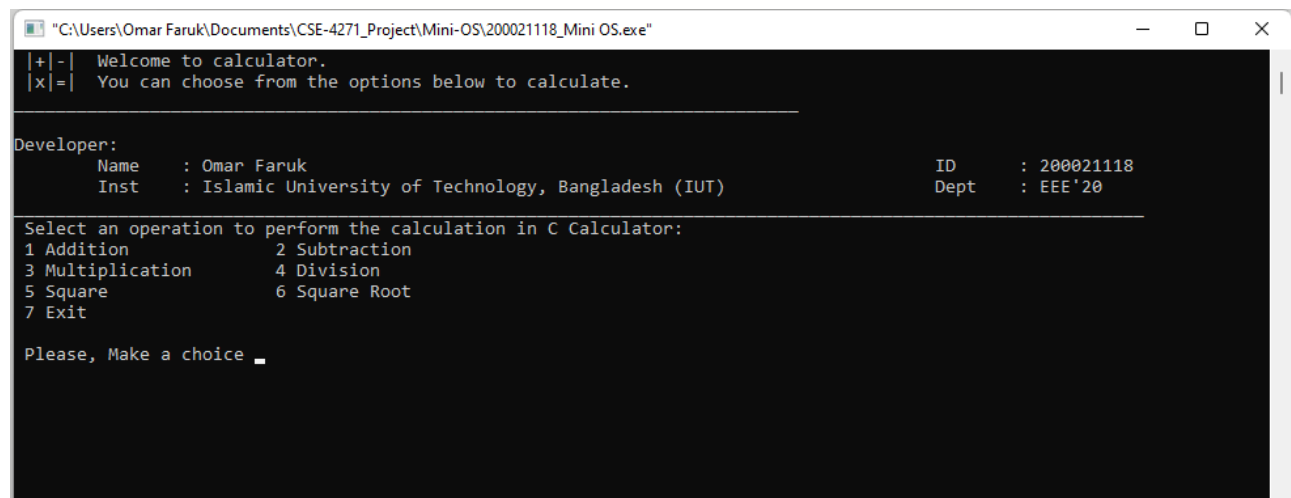
```
 "C:\Users\Omar Faruk\Documents\CSE-4271_Project\Mini-OS\200021118_Mini OS.exe"          —    □    ×

......#####################......           System  : Mini OS
...#####/***\#####/***\#######....          Language     : C
..#####/*****\###/*****\#######...
.#####/*** ***\#/*** ***\#######..
#####/***/#\******/##\***\#######.
###/***/##############\***\#######.          Developer:
.##/***/##############\***\#####.                Name    : Omar Faruk
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..##########################..                   ID      : 200021118
...######################....                    Dept    : EEE'20

_____  [type "help" and press enter, to see available commands.] _____


---# Welcome to Mini OS #---

>>calculator
```

*After command

```
 "C:\Users\Omar Faruk\Documents\CSE-4271_Project\Mini-OS\200021118_Mini OS.exe"          —    □    ×
|+|-|  Welcome to calculator.
|x|=|  You can choose from the options below to calculate.
_____

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_____
Select an operation to perform the calculation in C Calculator:
1 Addition              2 Subtraction
3 Multiplication        4 Division
5 Square                6 Square Root
7 Exit

Please, Make a choice _
```

● **time**
  *This command will show date & time.

```
---# Welcome to Mini OS #---

>>time
Command: time
Time is- 19:42:54
Date is- 28/04/2022


>>
```

● **word**
  *This command will open the **word** software. This is a text writing
  software. Any text file (*like *.txt , *.c , *.cpp , *.html , etc.) can be
  written with this.*

```
"C:\Users\Omar Faruk\Documents\CSE-4271_Project\Mini-OS\200021118_Mini OS.exe"                    —    □    ×

......####################......
...####/***\####/***\#######....          System   : Mini OS
..####/*****\###/*****\#######...          Language       : C
.####/*** ***\#/*** ***\#######..
####/***/#\******/##\***\#######.
####/***/##############\***\#####.          Developer:
.##/***/##############\***\#####.               Name    : Omar Faruk
.#/***/##############\***\###..                 Inst    : Islamic University of Technology, Bangladesh (IUT)
..#########################..                   ID      : 200021118
...#######################....                  Dept    : EEE'20

_____  [type "help" and press enter, to see available commands.] _____


---# Welcome to Mini OS #---

>>time
Command: time
Time is- 19:42:54
Date is- 28/04/2022


>>word
```

```
"C:\Users\Omar Faruk\Documents\CSE-4271_Project\Mini-OS\200021118_Mini OS.exe"                    —    □    ×
|\\####//|              Welcome to Word.
|#\\/\//#|              This software can be used to write notes, documents, applications, codes ect.
|##\/\/##|                    * [ USE "Ctrl + Z" and press enter to end the file. ] *
_____
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_____

1) Create a new file.          2) Open a file.
3) Edit a file.                4)Exit.

Please, make a choice:
```
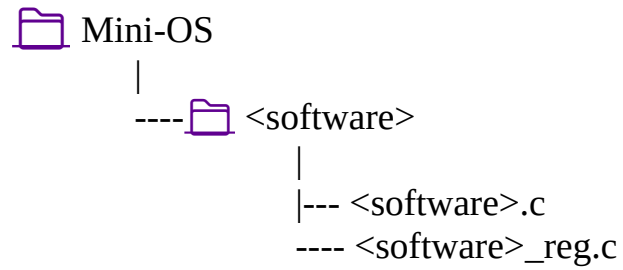
● **excel**
  ***similar to word software.**

- **tic_tac_toe**

  *This command will open *Tic Tac Toe* game installed into *Mini OS*.

● install

*file structure

📂 Mini-OS
    |
    ----📂 <software>
           |
           |--- <software>.c
           ---- <software>_reg.c

*Example for **Tic Tac Toe** game.

📂 Mini-OS
    |
    ----📂 tic_tac_toe
           |
           |--- tic_tac_toe.c
           ---- tic_tac_toe_reg.c
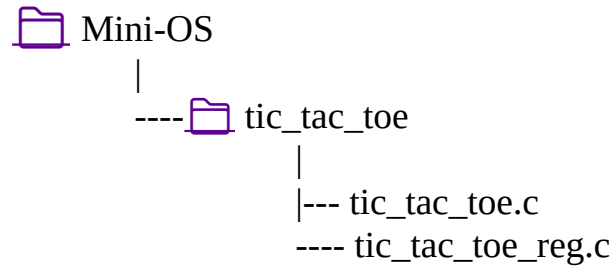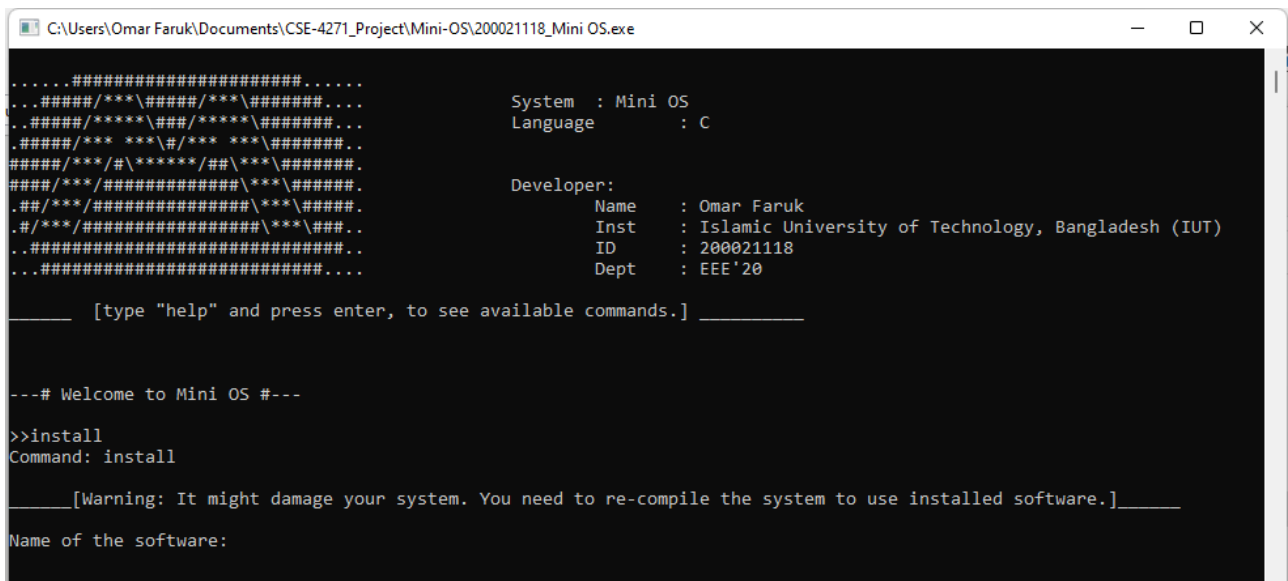
*Structure of **<software>.c** file

```
|
| void <software>(){
|
|       ----main code -----
|       ----- ----- ----- -----
| }
|
```

* Structure of **<software>_reg.c** file

```
|
|       else if(!strcmp(com,"<software>")){
|               <software>();
|       }
|
```

1) To install a new software type "install" and then press enter.
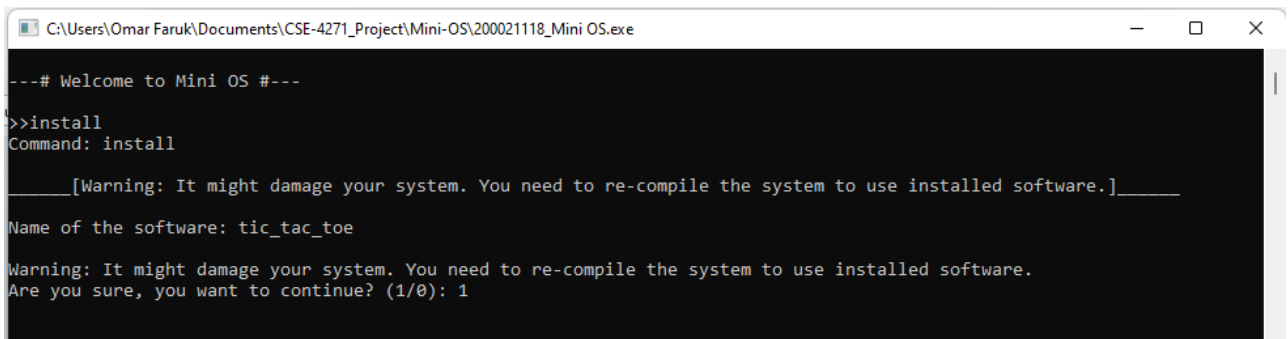
2) type the name of the software *(like: "tic_tac_toe")* and press enter.
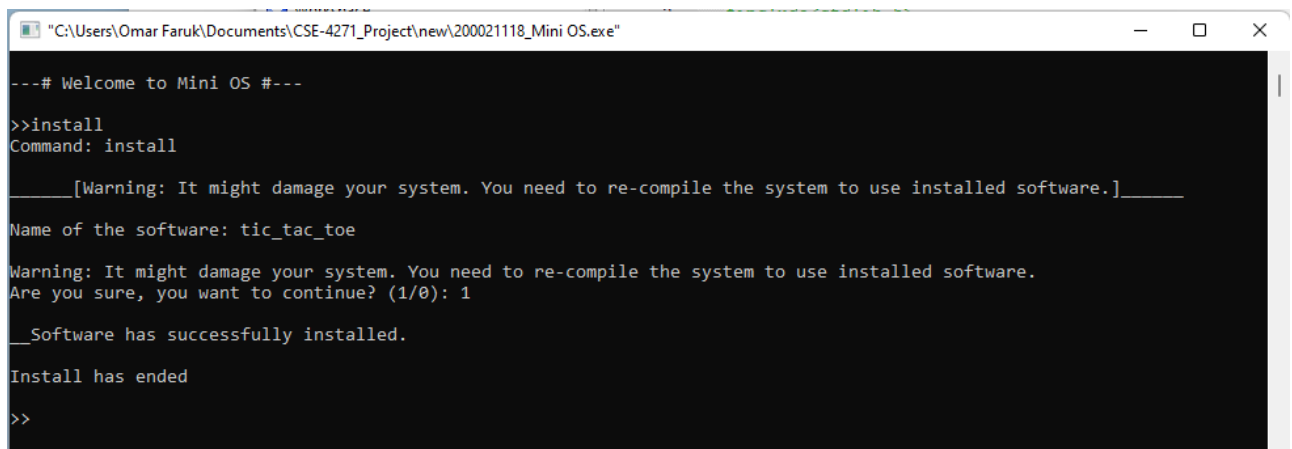
3) If you are sure every thing is ok the type "*1*" and press enter.

4) After Installation is finished. The system needs to be again **Build & run.**
It needs to **compile and run** again, to access the new changes.