

Q)Design a custom instruction for a given equation in compiler.

ANS:

Process

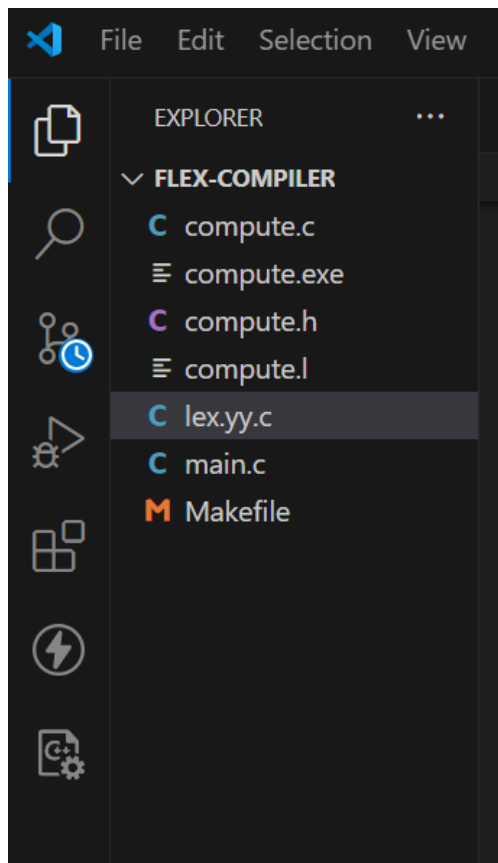
VSCODE:

1)Create a folder named as you want

2)make 5 files that are:compute.h, compute.l, compute.c, Makefile,Main.c

project-root/

```
|— Makefile
|— compute.l    // Flex file
|— compute.c    // C logic for custom instructions
|— compute.h    // Header file for shared declarations
|— main.c       // Main execution logic
```



3)Write the codes in all the files.

4)Install the extension MakeFile tools.

5)Select a problem statement you are dealing and update code accordingly.

INSTALL MSYS MINGW 64

MSYS:

1)Download following packages in that:

- gcc
- flex
- make

2)go to the directory where you have the folder of vs code

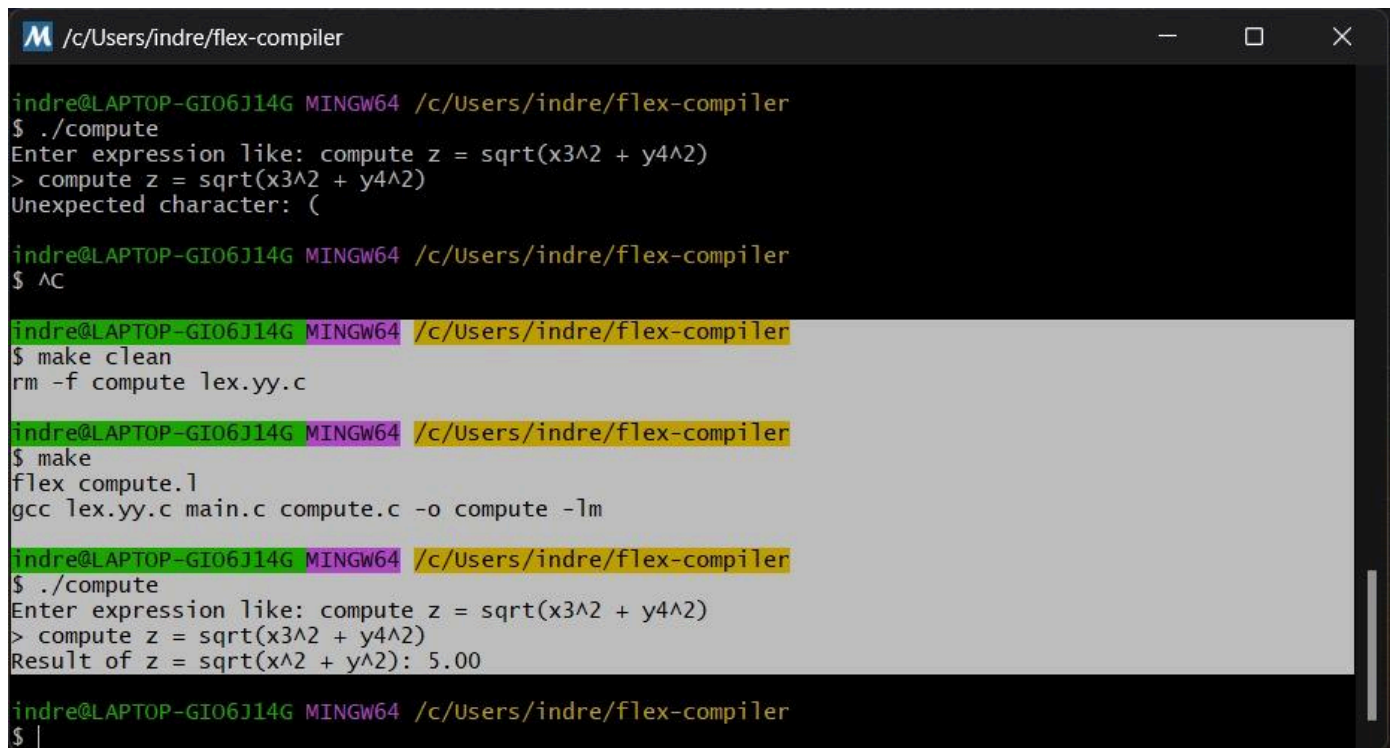
3)Run the command “make”

4)Run the command “./compute”

5)Put the input and result will be displayed.

->compute.exe file is automatically made inside the vs code.

->lex.yy.c file is automatically generated in vs code.



```

/c/Users/indre/flex-compiler

indre@LAPTOP-GI06J14G MINGW64 /c/Users/indre/flex-compiler
$ ./compute
Enter expression like: compute z = sqrt(x3^2 + y4^2)
> compute z = sqrt(x3^2 + y4^2)
Unexpected character: (

indre@LAPTOP-GI06J14G MINGW64 /c/Users/indre/flex-compiler
$ ^C

indre@LAPTOP-GI06J14G MINGW64 /c/Users/indre/flex-compiler
$ make clean
rm -f compute lex.yy.c

indre@LAPTOP-GI06J14G MINGW64 /c/Users/indre/flex-compiler
$ make
flex compute.l
gcc lex.yy.c main.c compute.c -o compute -lm

indre@LAPTOP-GI06J14G MINGW64 /c/Users/indre/flex-compiler
$ ./compute
Enter expression like: compute z = sqrt(x3^2 + y4^2)
> compute z = sqrt(x3^2 + y4^2)
Result of z = sqrt(x^2 + y^2): 5.00

indre@LAPTOP-GI06J14G MINGW64 /c/Users/indre/flex-compiler
$ |
```

```

/c/Users/indre/flex-compiler
$ make
flex compute.1
gcc lex.yy.c main.c compute.c -o compute -lm

indre@LAPTOP-GI06J14G MINGW64 /c/Users/indre/flex-compiler
$ ./compute
Enter expression like: compute z = sqrt(x3^2 + y4^2)
> compute z = sqrt(x3^2 + y4^2)
Result of z = sqrt(x^2 + y^2): 5.00

indre@LAPTOP-GI06J14G MINGW64 /c/Users/indre/flex-compiler
$ make clean
rm -f compute lex.yy.c

indre@LAPTOP-GI06J14G MINGW64 /c/Users/indre/flex-compiler
$ make
flex compute.1
gcc lex.yy.c main.c compute.c -o compute -lm

indre@LAPTOP-GI06J14G MINGW64 /c/Users/indre/flex-compiler
$ ./compute
Enter expression like: compute z = sqrt(x3^2 + y4^2)
> compute z = sqrt(x6^2 + y8^2)
Result of z = sqrt(x^2 + y^2): 10.00

indre@LAPTOP-GI06J14G MINGW64 /c/Users/indre/flex-compiler
$ |
```

I have taken the equation to find the distance between a point and origin.
Which is given by equation $\sqrt{x^2 + y^2}$.