Experiment 07

Aim: Building C Project using makefile.

A Makefile is a script used by the **make** command to automate the process of compiling and linking programs. It defines a set of rules that specify how to build a project efficiently.

1. **Main Project Directory**

   mkdir c_project_aatif
   ls
   cd c_project_aatif

   ```
   localhost:~# mkdir c_project_aatif
   localhost:~# ls
   bench.py          c_project_aatif  hello.c
   localhost:~# cd c_project_aatif
   ```

2. **Create hellomake.c**

   vi hellomake.c
   #include <hellomake.h>
   int main()
   {
     myPrintHelloMake();
     return(0);
   }
    esc (for escaping insert mode and come back to command mode)
   :wq(for save and exit)

   ```
   localhost:~/c_project_aatif# vi hellomake.c
   include <hellomake.h>
   int main()
   {
       myPrintHelloMake();
       return(0);
   }

   ~
   ~
   ~
   :wq
   ```

3. **Create hellofunc.c**

   vi hellofunc.c
   #include <stdio.h>
   #include <hellomake.h>
   void myPrintHelloMake() {
     printf("Hello makefile! \\n");
     return;
   }
   esc (for escaping insert mode and come back to command mode)
   :wq(for save and exit)

   ```
   localhost:~/c_project_aatif# vi hellofunc.c
   include <stdio.h>
   #include <hellomake.h>
   void myPrintHelloMake() {
       printf("Hello makefile! \\n");
       return;
   }

   ~
   ~
   ~
   :wq
   ```

4. **Create Makefile**
   vi makefile
   CC=clang
   CFLAG=-I.
   DEPS = hellomake.h

   %.o: %.c $(DEPS)
      $(CC) -c -o $@ $< $(CFLAG)

   hellomake: hellomake.o hellofunc.o
      $(CC) -o hellomake hellomake.o hellofunc.o

   esc (for escaping insert mode and come back to command mode)
   :wq(for save and exit)

```
localhost:~/c_project_aatif# vi makefile
CC=clang
CFLAG=-I.
DEPS = hellomake.h

%.o: %.c $(DEPS)
    $(CC) -c -o $@ $< $(CFLAG)

hellomake: hellomake.o hellofunc.o
    $(CC) -o hellomake hellomake.o hellofunc.o
~
~
~
:wq
```

5. **Create hellomake.h**
   vi hellomake.h
   /* example include file */
   void myPrintHelloMake();

   esc (for escaping insert mode and come back to command mode)
   :wq(for save and exit)

```
localhost:~/c_project_aatif# vi hellomake.h
/* example include file */
void myPrintHelloMake();


~
~
~
:wq
```

6. **Compile & Run**
   To compile the program:
   make
   To run the program:
   ./ hellomake

```
localhost:~/c_project_aatif# make
clang -I.    -c -o hellofunc.o hellofunc.c
clang -o hellomake hellomake.o hellofunc.o
localhost:~/c_project aatif# ./hellomake
Hello makefile!
```