

Experiment – 7

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  
cd c_project_aatif
```

```
localhost:~# mkdir C_Project  
localhost:~# cd C_Project  
localhost:~/C_Project# vi hellomake.c
```

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)

```
#include<hellomake.h>  
int main()  
{  
    myPrintHelloMake();  
return 0;  
}  
~  
~
```

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

4. 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# ls
hellofunc.c  hellomake.c
localhost:~/C_Project# vi hellomake.h
/*example include file*/
void myPrintHelloMake();
~
```

5. 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
```

```
localhost:~/C_Project# ls
hellofunc.c  hellomake.c  hellomake.h
localhost:~/C_Project# 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
~
```

6. Compile & Run

To compile the program:
make

To run the program:
./hellomake

```
localhost:~/C_Project# ls
hellofunc.c  hellomake.c  hellomake.h  makefile
localhost:~/C_Project# make
clang -c -o hellomake.o hellomake.c -I.
clang -c -o hellofunc.o hellofunc.c -I.
clang -o hellomake hellomake.o hellofunc.o
localhost:~/C_Project# ./hellomake
Hello makefile!
localhost:~/C_Project#
```