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CSE 330
4 / 6 / 17
Lab 1

a) Review of Makefile

Study the usage of make:

1. GNUmakefile, makefile, Makefile. In that order.
2. make [-f name], where name is a different file name
3. make -C dir, ex: -C /Home
4. make -v, i use version 3.81
5. make -I dir, ex: -I /Desktop where the different makefile is in the Desktop folder

Study the usage of cat:

6. It prints non-printing characters from makefile, replacing those characters with ^I for each tab, and puts a $ at the end of each line and at every empty line in the makefile

b) Modular Programming

See attached zip file to run multiply. Here is a text version for each file

1. Source code for **main.cpp**

```
#include <iostream>
#include <stdlib.h>
#include "functions.h"
int main(int argc, char* argv[]) {
        double a = atof(argv[1]);
        double b = atof(argv[2]);
        if ( (a==0)||(b==0) )
                std::cout<<"\033[0;31mInvalid input. "
                        "Enter numbers only\033[0m\n";
        else {
                double result = product(a, b);
                print(result);
        }
        return 0;
}
```

2. Source code for **product.cpp**

```
#include "functions.h"
double product(double a, double b) { return a * b; }
```

3. Source code for **print.cpp**

```
#include <iostream>
#include "functions.h"
void print(double r) { std::cout<<"\033[0;32m"<<r<<"\033[0m\n"; }
```

4. Source code for **functions.h** header file

```
#ifndef FUNCTIONS_H
#define FUNCTIONS_H
```

```
extern double product(double a, double b);
extern void print(double r);
#endif
```

5. Source code for the **Makefile** with **clean** target

```
multiply: main.o product.o print.o
	g++ -o multiply main.o product.o print.o

main.o: main.cpp functions.h
	g++ -c main.cpp

product.o: product.cpp functions.h
	g++ -c product.cpp

print.o: print.cpp functions.h
	g++ -c print.cpp

clean:
	rm -f *.o
```

c) Basic Shell Programming

Work to do:

```
Hello Adnar
Today is
Sat Apr  8 16:55:29 PDT 2017
Number of user login :
       2
Calendar
     April 2017
Su Mo Tu We Th Fr Sa
                   1
 2  3  4  5  6  7  8
 9 10 11 12 13 14 15
16 17 18 19 20 21 22
23 24 25 26 27 28 29
30
```

Exercise on shell scripts:

Included in the zip folder are the shell scripts for this exercise
They are **first**, **ginfo**, and **Adnar_my_shell_script**

Q.1)
```
x=10
echo $x
```

Q.2)
```
xn=CSUSB
echo $xn
```

Q.3)
```
x=6
y=3
sum=$((x+y))
echo $sum
```