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ROLL NO : 422128

SEC-A

*FIbonacci.c file

```c
#include <stdio.h>
int fibonacci(int n) {
    if (n <= 1)
        return n;
    else
        return fibonacci(n-1) + fibonacci(n-2);
}
```

*Main.c file

```c
#include <stdio.h>
#include "functions.h"
int main() {
    int num = 10;
    int fib_result = fibonacci(num);
    printf("Fibonacci of %d is %d\n", num, fib_result);

    int prime_num = 13;
    if (is_prime(prime_num))
        printf("%d is a prime number\n", prime_num);
    else
        printf("%d is not a prime number\n", prime_num);

    return 0;
}
```

*Prime.c file

```c
#include <stdio.h>


int is_prime(int num) {

    if (num <= 1)

        return 0;  // Not a prime number

    for (int i = 2; i * i <= num; i++) {

        if (num % i == 0)

            return 0;  // Not a prime number

    }

    return 1;  // Prime number

}
```

*Functions.h file

```c
#ifndef FUNCTIONS_H

#define FUNCTIONS_H


int fibonacci(int n);

int is_prime(int num);


#endif
```

OUTPUT:

STATIC:

student@student:~/Desktop/422128/unix/week 6$ ls

fibonacci.c functions.h main.c prime.c

student@student:~/Desktop/422128/unix/week 6$ gcc -c fibonacci.c -o fibonacci_obj.o

student@student:~/Desktop/422128/unix/week 6$ gcc -c prime.c -o prime_obj.o

student@student:~/Desktop/422128/unix/week 6$ gcc -c main.c -o main_obj.o

student@student:~/Desktop/422128/unix/week 6$ ar rcs eg_static.a fibonacci_obj.o prime_obj.o

student@student:~/Desktop/422128/unix/week 6$ ls

eg_static.a fibonacci.c fibonacci_obj.o functions.h main.c main_obj.o prime.c prime_obj.o

student@student:~/Desktop/422128/unix/week 6$ gcc -o main_result main_obj.o -L. eg_static.a

student@student:~/Desktop/422128/unix/week 6$ ./main_result

Fibonacci of 10 is 55

13 is a prime number

student@student:~/Desktop/422128/unix/week 6$ ls

eg_static.a fibonacci.c fibonacci_obj.o functions.h main.c main_obj.o main_result prime.c prime_obj.o

student@student:~/Desktop/422128/unix/week 6$

student@student:~/Desktop/422128/unix/week 6$ ^C

DYNAMIC:

student@student:~/Desktop/422128/unix/week 6$ ls

eg_static.a fibonacci.c fibonacci_obj.o functions.h main.c main_obj.o main_result prime.c prime_obj.o static.txt

student@student:~/Desktop/422128/unix/week 6$ gcc *.o -shared -o eg_dynamic.so

student@student:~/Desktop/422128/unix/week 6$ ls

eg_dynamic.so eg_static.a fibonacci.c fibonacci_obj.o functions.h main.c main_obj.o main_result prime.c prime_obj.o static.txt

student@student:~/Desktop/422128/unix/week 6$ gcc -o main_result main_obj.o -L. eg_dynamic.so

student@student:~/Desktop/422128/unix/week 6$ ./main_result

./main_result: error while loading shared libraries: eg_dynamic.so: cannot open shared object file: No such file or directory

student@student:~/Desktop/422128/unix/week 6$ sudo cp eg_dynamic.so /usr/lib

[sudo] password for student:

student@student:~/Desktop/422128/unix/week 6$ ./main_result

Fibonacci of 10 is 55

13 is a prime number

student@student:~/Desktop/422128/unix/week 6$ sudo rm /usr/lib/eg_dynamic.so

student@student:~/Desktop/422128/unix/week 6$ pwd

/home/student/Desktop/422128/unix/week 6

student@student:~/Desktop/422128/unix/week 6$ export LD_LIBRARY_PATH=

student@student:~/Desktop/422128/unix/week 6$ export
LD_LIBRARY_PATH=:/home/student/Desktop/422160/unix/week 6

bash: export: `6': not a valid identifier

student@student:~/Desktop/422128/unix/week 6$ export
LD_LIBRARY_PATH=:/home/student/Desktop/422160/unix

student@student:~/Desktop/422128/unix/week 6$ ./main_result

Fibonacci of 10 is 55

13 is a prime number

student@student:~/Desktop/422128/unix/week 6$ ls

eg_dynamic.so eg_static.a fibonacci.c fibonacci_obj.o functions.h main.c main_obj.o main_result prime.c prime_obj.o static.txt

student@student:~/Desktop/422128/unix/week 6$

student@student:~/Desktop/422128/unix/week 6$ ldd main_result

        linux-vdso.so.1 (0x00007ffc4c3e9000)

        eg_dynamic.so (0x00007fb677e8e000)

        libc.so.6 => /lib/x86_64-linux-gnu/libc.so.6 (0x00007fb677c84000)

        /lib64/ld-linux-x86-64.so.2 (0x00007fb677e9a000)

student@student:~/Desktop/422128/unix/week 6$