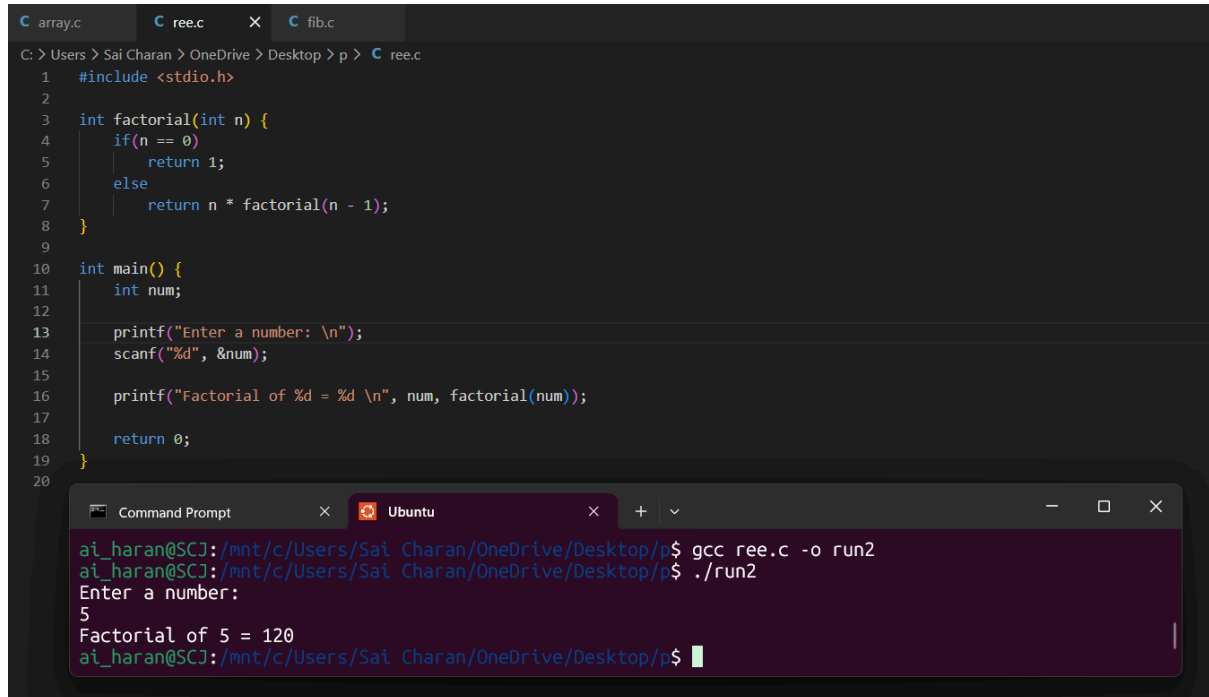


2. i) Write a program to find the factorial of a number using recursion.

Code with Output:



The image shows a code editor with a C program for calculating the factorial of a number using recursion. The program is named `ree.c` and is located in the directory `C:\Users\Sai Charan\OneDrive\Desktop\p`. The code defines a recursive function `factorial` and a `main` function that prompts the user for a number and prints the result.

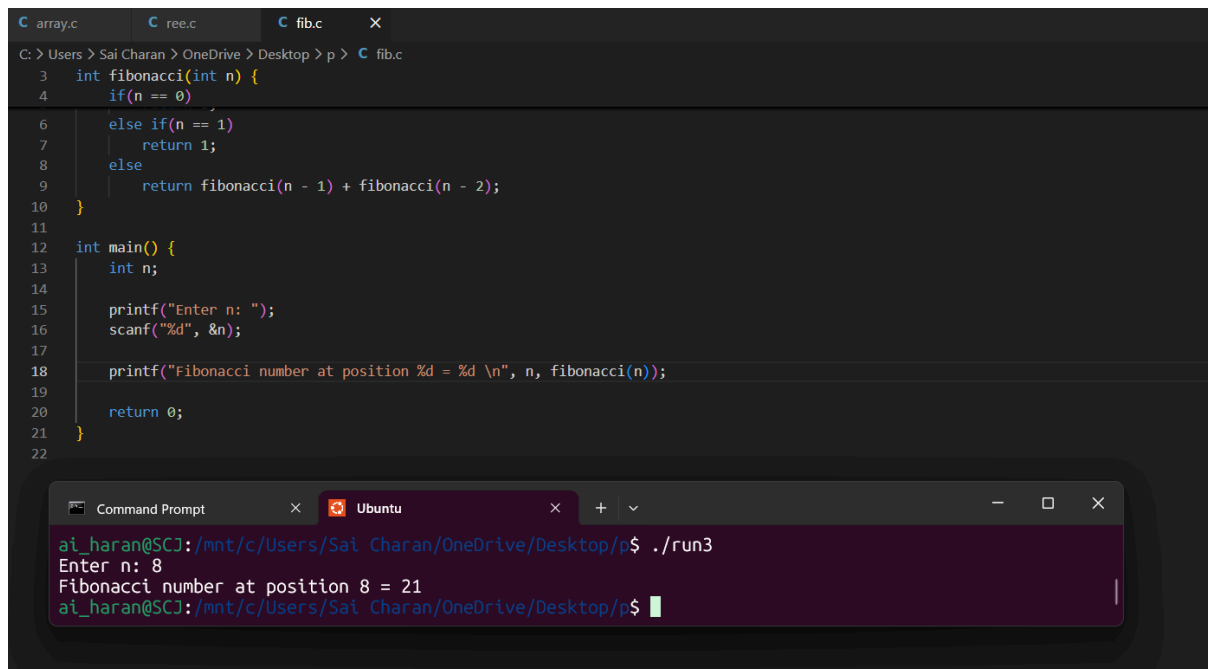
```
1  #include <stdio.h>
2
3  int factorial(int n) {
4      if(n == 0)
5          return 1;
6      else
7          return n * factorial(n - 1);
8  }
9
10 int main() {
11     int num;
12
13     printf("Enter a number: \n");
14     scanf("%d", &num);
15
16     printf("Factorial of %d = %d \n", num, factorial(num));
17
18     return 0;
19 }
20
```

Below the code editor, a terminal window shows the execution of the program. The user runs `gcc ree.c -o run2` and `./run2`. The program prompts for a number, and the user enters `5`. The output is `Factorial of 5 = 120`.

```
ai_haran@SCJ:/mnt/c/Users/Sai Charan/OneDrive/Desktop/p$ gcc ree.c -o run2
ai_haran@SCJ:/mnt/c/Users/Sai Charan/OneDrive/Desktop/p$ ./run2
Enter a number:
5
Factorial of 5 = 120
ai_haran@SCJ:/mnt/c/Users/Sai Charan/OneDrive/Desktop/p$
```

ii) Write a program to find the nth Fibonacci number using recursion.

Code with output:



```
C array.c C ree.c C fib.c X
C: > Users > Sai Charan > OneDrive > Desktop > p > C fib.c
3  int fibonacci(int n) {
4      if(n == 0)
5          return 0;
6      else if(n == 1)
7          return 1;
8      else
9          return fibonacci(n - 1) + fibonacci(n - 2);
10 }
11
12 int main() {
13     int n;
14
15     printf("Enter n: ");
16     scanf("%d", &n);
17
18     printf("Fibonacci number at position %d = %d \n", n, fibonacci(n));
19
20     return 0;
21 }
22
```

```
ai_haran@SCJ:/mnt/c/Users/Sai Charan/OneDrive/Desktop/p$ ./run3
Enter n: 8
Fibonacci number at position 8 = 21
ai_haran@SCJ:/mnt/c/Users/Sai Charan/OneDrive/Desktop/p$
```