CSCI 12042-Structured programming II

Course Work

Git Hub link :- https://github.com/Shashikala-manohari/Prime-Number-Checker

Utility Application Title – Prime Number Checker

Introduction

Prime Number Checker Utility is a simple C program that allows user to input a positive integer and check whether the given number is a prime or not. By the functions in the program, It checks the primality and output the results to the user. It also display an error message when inputting invalid inputs. User can continue checking prime numbers until they choose to exit the program.

Program Overview

- **Function intro()**

  Display an introduction message that describe about the program.

```c
void intro(){
    printf("\n--------Prime Number Checker-------------\n");
}
```

```
--------Prime Number Checker-------------
```

- **Function check_prime()**

  Checking if the number is a prime or not is done by this function. It takes integer n as a parameter and by a simple for loop check the divisibility of the integer n. If no divisors are found, then the integer is considered as a prime. And also check if the integer n is less than or equal to 1, if it is true, then that the integer considered as it is not a prime.

```c
void check_prime(int n){
    int i,c=1;

    if (n<=1){
        c=0;
    }
    for ( i = 2; i <= sqrt(n); i++) {
        if (n % i == 0) {
            c=0;
        }
    }
    if (c) {
        printf("%d is a prime number.\n", n);
    } else {
        printf("%d is not a prime number.\n", n);
    }
}
```

```
Enter any number n:     5
5 is a prime number.
```

```
Enter any number n:     8
8 is not a prime number.
```

```
Enter any number n:     1
1 is not a prime number.
```

- **Function error()**

  Displays an error message when user inputs a negative number and inform the user to enter only positive numbers.

```c
void error(){
    printf("\n Error!...Please Enter a positive integer....\n\n");
    printf("*****End******\n");
}
```

```
Enter any number n:     -1

 Error!...Please Enter a positive integer....
```

- **Function main()**

  First call the intro() function to introduce the program. Then a do while loop is used for a program continuation, to input numbers repeatedly and to check whether the numbers that input are prime or not by calling the check_prime() function repeatedly.

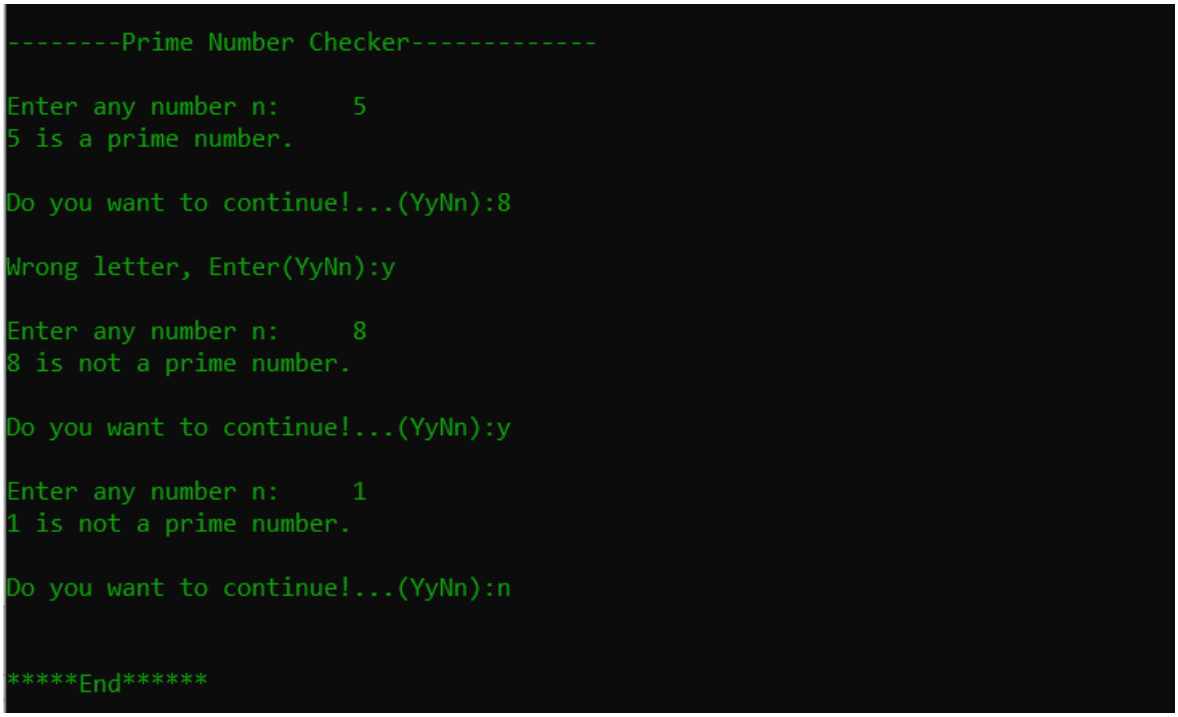
```
int main() {
    intro();
    char ans;
    do{
        int n;

        printf("\nEnter any number n:\t");
        scanf("%d", &n);

        if (n<0){
            error();
            return;
        }
        check_prime(n);

        printf("\nDo you want to continue!...(YyNn):");
        do{
            scanf(" %c",&ans);
            if(ans=='Y'||ans=='y'||ans=='N'||ans=='n'){
                break;
            }
            else{
                printf("\nWrong letter, Enter(YyNn):");
            }
        }while(1);
        if(ans=='N'||ans=='n')
            break;
    }while(1);
    printf("\n\n*****End******\n");

    return 0;
}
```



Conclusion

By this Prime Number Checker Utility we can check whether a given number is a prime or not and also handles invalid inputs. Allows the user to input numbers repeatedly to check the primality which is needed for mathematical calculations. This utility is useful for users that interested in prime number analysis.

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