

1) Write a program that generates prime numbers. The program takes an input from the user and generates prime numbers up to the given input. Use separate functions in your program.

Sample input: 15

Sample output:

1
2
3
5
7
11
13

CODE

```
/*
AUTHER: Bibek Dhungana
FILE NAME: primeNumber.c
SPECIFICATION: This program takes input from the user and print all the prime num
ber upto that number
FOR: CS 1412 Programming Principles 2 Section 504
*/

/*importing all the required libraries*/
#include <stdio.h>

/* function prototype of isPrime*/
int isPrime(int);

/*function prototype of allPrime*/
void allPrime(int number);

int main(void){

    /*initializing all the required variables*/
    int numberEntered;

    /*Printing info about the program and taking input from the user and storing
in variable*/
    printf("This program generate all the prime number upto the given input\n");
    printf("Please enter the positive number:");
```

```

scanf("%d", &numberEntered);

//calling the allPrime function to print all the prime number upto given input
t
allPrime(numberEntered);
return 0;
}

```

```

/*
Name: isPrime
INPUT: integer number n
OUTPUT: return 1 if number is prime and 0 if number is not prime
PRECONDITION: The input number must be greater than or equal to 2.
POSTCONDITION:
SPECIFICATION: This function takes an integer and checks if the number is prime.
*/
int isPrime(int number){
    /*The number is prime if and only if it has only 2 divisors (1 and itself). If modulus is zero
    when divided by any number from 2 to n - 1, the number is not prime. so return 0*/
    for (int i = 2; i <= number - 1; i++){
        if (number % i == 0){
            return 0;
        }
    }
    return 1;
}

```

```

/*
Name: allPrime
INPUT: integer n
OUTPUT: print all the prime numbers upto integer n
PRECONDITION: The number must be greater than or equal to 2.
POSTCONDITION: It prints all the prime numbers upto n in console.
SPECIFICATION: This function takes integer as input and prints all the prime numbers upto n
*/
void allPrime(int number){
    for (int i = 2; i <= number; i++){
        /*Print the number if the number is prime*/
        if(isPrime(i) == 1){
            printf("%d\n",i);
        }
    }
}

```

```
    }  
}  
}
```

OUTPUT

```
PS C:\Users\Dhung\OneDrive\Spring 2021\CS  
1412\Assignment\Lab3> g++ -o primeNumber  
primeNumber.c
```

```
PS C:\Users\Dhung\OneDrive\Spring 2021\CS  
1412\Assignment\Lab3> ./primeNumber
```

This program generate all the prime number upto
the given input

Please enter the positive number:100

```
2  
3  
5  
7  
11  
13  
17  
19  
23  
29  
31  
37  
41  
43  
47  
53
```

59
61
67
71
73
79
83
89
97

```
PS C:\Users\Dhung\OneDrive\Spring 2021\CS
1412\Assignment\Lab3> ./primeNumber
Please enter the positive number:10
2
3
5
7
```