Assignment 11

More functions

#include <stdio.h>

// Function to calculate the LCM of two numbers

int calculateLCM(int a, int b) {

int max = (a > b) ? a : b;

while (1) {

if (max % a == 0 && max % b == 0) {

return max;

}

max++;

}

}

// Function to calculate the HCF of two numbers

int calculateHCF(int a, int b) {

int temp;

while (b != 0) {

temp = b;

b = a % b;

a = temp;

}

return a;

}

// Function to check whether a given number is prime or not

int isPrime(int num) {

if (num <= 1) {

return 0;

}

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

if (num % i == 0) {

return 0;

}

}

return 1;

}

// Function to find the next prime number after a given number

int findNextPrime(int num) {

while (1) {

num++;

if (isPrime(num)) {

return num;

}

}

}

// Function to print the first N prime numbers

void printNPrimes(int N) {

int num = 2;

int count = 0;

while (count < N) {

if (isPrime(num)) {

printf("%d ", num);

count++;}

num++;

}

printf("\n\n");}

// Function to print all prime numbers between two given numbers

void printPrimesInRange(int start, int end) {

for (int num = start; num <= end; num++) {

if (isPrime(num)) {

printf("%d ", num);

}

}

printf("\n\n");

}

// Function to print the first N terms of the Fibonacci series

void printNFibonacci(int N) {

int a = 0, b = 1;

printf("First %d terms of the Fibonacci series: ", N);

for (int i = 0; i < N; i++) {

printf("%d ", a);

int temp = a + b;

a = b;

b = temp;

}

printf("\n\n");

}

// Function to calculate the square of a number

int calculateSquare(int num) {

return num \* num;

}

// Function to find the sum of the series 1!/1 + 2!/2 + 3!/3 + 4!/4 + 5!/5

double calculateSeriesSum(int N) {

double sum = 0;

for (int i = 1; i <= N; i++) {

double term = 1.0;

for (int j = 1; j <= i; j++) {

term \*= (double)j;

}

sum += term / (double)i;

}

return sum;

}

// Driver

int main() {

int num1, num2, num, N, startRange, endRange;

printf("Enter two numbers to calculate their LCM: ");

scanf("%d %d", &num1, &num2);

printf("LCM of %d and %d: %d\n\n", num1, num2, calculateLCM(num1, num2));

printf("Enter two numbers to calculate their HCF: ");

scanf("%d %d", &num1, &num2);

printf("HCF of %d and %d: %d\n\n", num1, num2, calculateHCF(num1, num2));

printf("Enter a number to check if it's prime: ");

scanf("%d", &num);

if (isPrime(num)) {

printf("%d is a prime number.\n\n", num);

} else {

printf("%d is not a prime number.\n\n", num);

}

printf("Enter a number to find the next prime number after it: ");

scanf("%d", &num);

printf("Next prime number after %d: %d\n\n", num, findNextPrime(num));

printf("Enter N to print the first N prime numbers: ");

scanf("%d", &N);

printNPrimes(N);

printf("Enter the start and end range to print prime numbers in between: ");

scanf("%d %d", &startRange, &endRange);

printPrimesInRange(startRange, endRange);

printf("Enter N to print the first N terms of the Fibonacci series: ");

scanf("%d", &N);

printNFibonacci(N);

printf("Enter a number to calculate its square: ");

scanf("%d", &num);

printf("Square of %d: %d\n\n", num, calculateSquare(num));

printf("Enter N to calculate the sum of the series: ");

scanf("%d", &N);

printf("Sum of the series: %.2lf\n", calculateSeriesSum(N));

return 0;

}

