// 15 Program Begainer 2nd Versin.cpp : Defines the entry point for the console application.

//

#include "stdafx.h"

#include "iostream"

using namespace std;

int BinaryToDacimal(long binary) {

int dacimal, answer = 0;

for (int power = 0; power < 10; power++)

{

dacimal = binary % 10;

binary = binary / 10;

answer = answer + dacimal \* pow(2, power);

}

return answer;

}

void star(int length) {

int liner;

liner = length + 1;

for (int a = 1; a <= length; a++) {

for (int b = 1; b <= length; b++) {

if (a + b >= liner) { cout << " \*"; }

else { cout << " "; }

}

cout << endl;

}

}

bool multiple(int n1, int n2) {

if (n1 % n2 == 0) { return 1; }

else { return 0; }

}

void fibonnaci(int n) {

int a = 0, b = 1, holder;

cout << endl << " " << a;

while (b <= n) {

cout << ", " << b;

holder = a;

a = b;

b = holder + b;

}

}

int powar(int a, int b) {

return pow(b, a);

}

int Equation(int a, int b, int c, int d) {

if (a\*a\*a + b\*b\*b + c\*c\*c == d\*d\*d) { return 0; }

else { return -1; }

}

int reverse(int a) {

int z = 0;

for (; a != 0;) {

z = z \* 10 + a % 10;

a = a / 10;

}

return z;

}

bool prime(int n) {

int a = 2;

while (a < n / 2 + 1) {

if (n % a == 0) { return 1; }

}

return 0;

}

int LCM(int a, int b) {

int greater, n = 2, ans = 1, decider;

if (a > b) { greater = a; }

else { greater = b; }

while (n <= a || n <= b) {

decider = 1;

if (a % n == 0 || b % n == 0) {

if (a % n == 0) { a = a / n; }

if (b % n == 0) { b = b / n; }

ans = ans \* n;

decider = 0;

}

if (decider) { n++; }

}

return ans;

}

int main()

{

int PriOpraSelector = 2, SecOpraSelector = 20;

do{

if (SecOpraSelector == 20)

{

cout << " List of Programs" << endl;

cout << "To exit whole program enter '0'." << endl;

cout << "Or enter any number to rum that program" << endl;

cout << "1) Dacimal to Binary 2) Binary to Dacimal 3) Count Zeros Even Odd in Number" << endl;

cout << "4) Trianle 5) Check 1st is multiple of 2nd 6) Fibbonaci Serios" << endl;

cout << "7)Power of a number 8) a^3+b^3+c^3=d^3 check equation 9) Reverse a number" << endl;

cout << "10)Check number prime 11) LCM of two numbers" << endl;

}

if (SecOpraSelector != 1)

{

cout << endl << endl;

cout << " Enter here the number = ";

cin >> PriOpraSelector;

while (PriOpraSelector < 0 || PriOpraSelector > 11)

{

cout << "Enter a number from '0' to '11'" << endl;

cout << " Enter here the number = ";

cin >> PriOpraSelector;

}

}

if (PriOpraSelector == 1)

{

int answer = 0, ReverseBinary = 2, two = 20, one = 0, holder = 0;

long dacimal, binary;

cout << "Enter a dacimal number.(maximum 5 digits) = ";

cin >> dacimal;

for (; dacimal < 0 || dacimal > 500;)

{

cout << "Enter a positive number and should be 500(maximum) = ";

cin >> dacimal;

}

cout << endl << endl;

cout << "That number in binary is = ";

if (dacimal == 1)

{

cout << "1";

}

else if (dacimal == 0)

{

cout << "0";

}

else

{

for (int a = 1; dacimal != 1; a++)

{

ReverseBinary = dacimal % 2;

dacimal = dacimal / 2;

if (ReverseBinary == 1)

{

holder = 1;

holder = one + holder + two;

holder = holder \* 10;

}

else if (ReverseBinary == 0)

{

holder = two + holder \* 10;

}

two = 0;

one = 1;

}

holder = holder \* 10 + 1;

for (; holder != 2;)

{

binary = holder % 10;

holder = holder / 10;

if (binary == 1)

{

answer = answer \* 10 + 1;

}

else if (binary == 0)

{

answer = answer \* 10;

}

}

cout << answer;

}

}

else if (PriOpraSelector == 2)

{

int binary, answer;

cout << "Enter a binary number.(maximum 9 digits) = ";

cin >> binary;

answer = BinaryToDacimal(binary);

cout << "That number in dacimal is = " << answer;

}

else if (PriOpraSelector == 3)

{

int zero = 0, even = 0, odd = 0;

long n;

cout << "Enter a number = ";

cin >> n;

while (n > 0) {

if (n % 10 == 0) { zero++; }

else if ((n % 10) % 2 == 0) { even++; }

else { odd++; }

n = n / 10;

}

cout << "Number of ZEROS = " << zero << endl;

cout << "Number of EVEN numbers = " << even << endl;

cout << "Number of ODD numbers = " << odd;

}

else if (PriOpraSelector == 4)

{

int length;

cout << "Please enter the length. = ";

cin >> length;

star(length);

}

else if (PriOpraSelector == 5)

{

int n1, n2;

cout << "Enter the First number = ";

cin >> n1;

cout << "Enter the Second number = ";

cin >> n2;

cout << endl;

if (multiple(n1, n2)) { cout << "Yes, the First number is multiple of Second"; }

else { cout << "No, the First number is multiple of Second"; }

cout << endl;

}

else if (PriOpraSelector == 6)

{

int n;

cout << "Enter the maximum range of FIBONACCI series = ";

cin >> n;

while (n < 0) {

cout << "Enter a +ve number = ";

cin >> n;

}

cout << "The required series is";

fibonnaci(n);

}

else if (PriOpraSelector == 7)

{

int a, b, answer;

cout << "Enter the First number = ";

cin >> a;

cout << "Enter the Second number = ";

cin >> b;

answer = powar(a, b);

cout << endl << "The POWER is = " << answer;

}

else if (PriOpraSelector == 8)

{

int a, b, c, d;

cout << "Enter four numbers to check weather the" << endl << endl;

cout << " a\*a\*a + b\*b\*b + c\*c\*c = d\*d\*d" << endl;

cout << " is satisfied or not" << endl << endl;

cout << "Enter First number = ";

cin >> a;

cout << "Enter the Second number = ";

cin >> b;

cout << "Enter the Third number = ";

cin >> c;

cout << "Enter the Forth number = ";

cin >> d;

if (!Equation(a, b, c, d)) { cout << "Yes, the equation is satisfied."; }

else { cout << "No, the equation is not satisfied."; }

}

else if (PriOpraSelector == 9)

{

int number, ans;

cout << "Enter a number to reverse it = ";

cin >> number;

ans = reverse(number);

cout << endl << "The reverse of this number is = " << ans;

}

else if (PriOpraSelector == 10)

{

int number;

cout << "Enter a number to check weather it is prime or not = ";

cin >> number;

while (number < 0) {

cout << "Enter number greater then zero. = ";

cin >> number;

}

cout << endl;

if (prime(number)) { cout << "No, the number is not prime."; }

else { cout << "Yes, the number is prime."; }

}

else if (PriOpraSelector == 11)

{

int n1, n2, ans;

cout << "Enter the first number = ";

cin >> n1;

while (n1 < 0) {

cout << "Enter a +ve number = ";

cin >> n1;

}

cout << "Enter the second number = ";

cin >> n2;

while (n2 < 0) {

cout << "Enter a +ve number = ";

cin >> n2;

}

ans = LCM(n1, n2);

cout << endl << "The LCM of " << n1 << " and " << n2 << " is = " << ans;

}

cout << endl;

if (PriOpraSelector != 0)

{

cout << "To start this program again enter '1'." << endl;

cout << "To see list again enter '20'." << endl;

cout << "Or to close whole program enter '0'." << endl;

cout << " Enter here the number = ";

cin >> SecOpraSelector;

while (SecOpraSelector != 0 && SecOpraSelector != 1 && SecOpraSelector != 20)

{

cout << "Enter 1, 0 or 20." << endl;

cout << "Or to close whole program enter '0'." << endl;

cout << " Enter here the number = ";

cin >> SecOpraSelector;

}

if (SecOpraSelector == 0)

{

PriOpraSelector = 0;

}

}

} while (PriOpraSelector != 0 && SecOpraSelector != 0);

cout << endl;

return 0;

}