2001210004 – Lưu Đức Vinh

Bài về nhà Buổi 7 8 9:

Bài 1, 2, 3, 4, 5:

#define \_CRT\_NONSTDC\_NO\_WARNINGS

#define \_CRT\_SECURE\_NO\_WARNINGS

#include <stdio.h>

#include <conio.h>

#include <stdlib.h>

#include <math.h>

int ucln(int a, int b);

int BinarySearch\_Recursive (int a[], int left, int right, int x);

int TinhS1 (int n);

float TinhS2 (int n);

float TinhS3 (int n);

float TinhS4 (int n);

int TinhS5 (int n);

int TinhGiaiThua (int n);

float TinhS6 (int n);

float TinhS7 (int n);

void move(int n, char A, char B, char C);

int main ()

{

int chon;

do

{

printf("1.Tim uoc chung lon nhat cua 2 so nguyen duong a, b\n");

printf("2.Tinh cac S(n)\n");

printf("3.Tim kiem PT tren mang da sap xep bang phuong phap nhi phan de quy\n");

printf("4.Bai toan toa thap Ha Noi\n");

printf("Chon chuc nang: "); scanf\_s("%d", &chon);

switch (chon)

{

case 1:

{

int a, b;

printf("Nhap a, b: "); scanf\_s("%d%d", &a, &b);

printf("UCLN(a, b) la: %d", ucln(a, b));

}

case 2:

{

int chon;

do

{

printf("1.Tinh S1\n");

printf("2.Tinh S2\n");

printf("3.Tinh S3\n");

printf("4.Tinh S4\n");

printf("5.Tinh S5\n");

printf("6.Tinh S6\n");

printf("7.Tinh S7\n");

printf("Chon chuc nang: "); scanf\_s("%d", &chon);

switch (chon)

{

case 1:

{

int n;

do

{

printf("Nhap n: "); scanf\_s("%d", &n);

if (n < 1)

{

printf("Xin vui long nhap >= 1\n");

}

}

while (n < 1);

printf("Tong S1 la: %d\n", TinhS1(n));

break;

}

case 2:

{

int n;

do

{

printf("Nhap n dau can: "); scanf\_s("%d", &n);

if (n < 1)

{

printf("Xin vui long nhap >= 1\n");

}

}

while (n < 1);

printf("Tong S2 la: %.2f\n", TinhS2(n));

break;

}

case 3:

{

int n;

do

{

printf("Nhap n: "); scanf\_s("%d", &n);

if (n == 0)

{

printf("Tong S3 la: 0\n");

}

else if (n < 0)

{

printf("Xin Vui long nhap n >= 0");

}

}

while (n < 0);

printf("Tong S3 la: %.2f\n", TinhS3(n));

break;

}

case 4:

{

int n;

do

{

printf("Nhap n: "); scanf\_s("%d", &n);

if (n < 0)

{

printf("Vui long nhap n >= 0\n");

}

}

while (n < 0);

printf("Tong S4 la: %.2f\n", TinhS4(n));

break;

}

case 5:

{

int n;

do

{

printf("Nhap n: "); scanf\_s("%d", &n);

if (n < 1)

{

printf("Vui long nhap n >= 1\n");

}

}

while (n < 0);

printf("Tong S5 la: %d\n", TinhS5(n));

break;

}

case 6:

{

int n;

do

{

printf("Nhap n: "); scanf\_s("%d", &n);

if (n < 1)

{

printf("Vui long nhap n >= 1\n");

}

}

while (n < 0);

printf("Tong S6 la: %.3f\n", TinhS6(n));

break;

}

case 7:

{

int n;

do

{

printf("Nhap n: "); scanf\_s("%d", &n);

if (n < 1)

{

printf("Vui long nhap n >= 1\n");

}

}

while (n < 0);

printf("Tong S7 la: %.3f\n", TinhS7(n));

break;

}

}

}

while (chon != 0);

break;

}

case 3:

{

int n;

int \*a;

int x;

printf("Nhap so luong pt cua mang: "); scanf\_s("%d", &n);

a = (int \*)malloc(n\*sizeof(int));

printf("Nhap pt mang da duoc sap xep:\n");

for (int i = 0; i < n; i++)

{

printf("Nhap pt a[%d]: ", i); scanf\_s("%d", &a[i]);

}

printf("Xuat mang: \n");

for (int i = 0; i < n; i++)

{

printf("%5d", a[i]);

}

printf("\nNhap pt x muon tim trong mang: "); scanf\_s("%d", &x);

if (BinarySearch\_Recursive(a, 0, n - 1, x) == -1)

{

printf("- Khong tim thay PT trong mang\n");

}

else

{

printf("Tim thay PT %d trong mang o vi tri: %d\n", x, BinarySearch\_Recursive(a, 0, n - 1, x));

}

break;

}

case 4:

{

int n;

printf("Nhap vao so dia N ma ban muon tim cach giai: "); scanf\_s("%d", &n);

printf("Thu tu dich chuyen cac vi tri A B C la: \n");

move(n, 'A', 'B', 'C');

break;

}

}

}

while (chon != 0);

return 0;

getch ();

}

int ucln(int a, int b)

{

if (b == 0) return a;

if (a % b == 0) return b;

return ucln(b, a % b);

}

int BinarySearch\_Recursive (int a[], int left, int right, int x)

{

if (left > right) return -1;

int mid = (left + right) / 2;

if (a[mid] == x)

return mid;

else if (a[mid] < x)

return BinarySearch\_Recursive(a, mid + 1, right, x);

else

return BinarySearch\_Recursive(a, left, mid - 1, x);

}

int TinhS1 (int n)

{

if (n <= 1)

return 1;

return n + TinhS1(n - 1);

}

float TinhS2 (int n)

{

if (n == 1)

return sqrt((float)5);

return sqrt(5 + TinhS2(n - 1));

}

float TinhS3 (int n)

{

if (n == 1)

return 1.0 / 2;

return (float)n / (n + 1) + TinhS3(n - 1);

}

float TinhS4 (int n)

{

if (n == 0)

return 1;

return (float)1 / (2 \* n + 1) + TinhS4(n - 1);

}

int TinhS5 (int n)

{

if (n == 1)

return 2;

return n \* (n + 1) + TinhS5(n - 1);

}

int TinhGiaiThua (int n)

{

if (n <= 1)

return 1;

return n \* TinhGiaiThua(n - 1);

}

float TinhS6 (int n)

{

if (n == 1)

return ((1 \* TinhGiaiThua(2)) / (2 + sqrt((float)3)));

return (n \* TinhGiaiThua(n + 1)) / ((n + 1) + sqrt((float)n + 2)) + TinhS6(n - 1);

}

float TinhS7 (int n)

{

if (n == 1)

return ((1 + sqrt((float)3)) / (2 + sqrt((float)TinhGiaiThua(3))));

return TinhS7(n - 1) + (n + sqrt((float)2 \* n + 1)) / ((n + 1) + sqrt((float)TinhGiaiThua(n + 2)));

}

void move(int n, char A, char B, char C)

{

if(n == 1)

{

printf("%c ==> %c\n", A, C);

}

else

{

move(n - 1, A, C, B);

printf("%c ==> %c\n", A, C);

move(n - 1, B, A, C);

}

}