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#include "stdafx.h"

#include <iostream>

#include <cstdlib>

#include<math.h>

using namespace std;

void message();

int compress(int dd, int mm, int yy);

int maximum(int x, int y, int z);

int minimumm(int n, int p, int k);

int iseven(int num);

int ispositive(int num1);

void option1(char let1, int w);

void option2(char let2, int g);

void option3(char let3, int l);

int main()

{

//question 1

message();

//question 2

int dd, mm, yy;

do

{

cout << "Please enter the day as two integers" << endl;

cin >> dd;

} while (dd > 31 || dd < 0);

do

{

cout << "Please enter the month" << endl;

cin >> mm;

} while (mm > 12 || mm < 0);

cout << "Please enter the year" << endl;

cin >> yy;

cout << compress(dd, mm, yy) << endl;

//question 3

int x, y, z;

cout << "Please enter 3 numbers to find the largest" << endl;

cin >> x >> y >> z;

cout <<"The maxium is : " << maximum(x, y, z) << endl;

//question 4

int n, p, k;

cout << "Please enter 3 numbers to find the smallest" << endl;

cin >> n >> p >> k;

cout << "The minimum is : " << minimumm(n, p, k) << endl;

//question 5

int num;

cout << "Enter an integer to see if it is even: ";

cin >> num;

cout << iseven(num) << endl;

//question 6

int num1;

cout << "Enter an integer to see if it is positive : ";

cin >> num1;

cout << ispositive(num1) << endl;

//question 7

char let1;

int w;

do

{

cout << "Please enter either A B or C for a pattern for row 1" << endl;

cin >> let1;

cout << "Please enter the width" << endl;

cin >> w;

} while (!(let1 == 'A' || let1 == 'B' || let1 == 'C') || w <= 0);

option1(let1, w);

char let2;

int g;

do

{

cout << "Please enter either A B or C for a pattern for row 2" << endl;

cin >> let2;

cout << "Please enter the width" << endl;

cin >> g;

} while (!(let2 == 'A' || let2 == 'B' || let2 == 'C') || g <= 0);

option2(let2, g);

char let3;

int l;

do

{

cout << "Please enter either A B or C for a pattern for row 3" << endl;

cin >> let3;

cout << "Please enter the width" << endl;

cin >> l;

} while (!(let3 == 'A' || let3 == 'B' || let3 == 'C'));

option3(let3, l);

return 0;

}

void message()

{

for (int i = 0; i < 30; i++)

{

cout << "\*";

}

cout << "\n Welcome to the PSP II course " << endl;

for (int i = 0; i < 30; i++)

{

cout << "\*";

}

cout << endl;

}

int compress(int dd, int mm, int yy)

{

int x = dd \* 10000 + mm \* 100 + yy;

return x;

}

int maximum(int x, int y, int z)

{

int max = x;

if (y > max)

{

max = y;

}

if (z > max)

{

max = z;

}

return max;

}

int minimumm(int n, int p, int k)

{

int mini = n;

if (p < mini)

{

mini = p;

}

if (k < mini)

{

mini = k;

}

return mini;

}

int iseven(int num)

{

if (num % 2 == 0)

return 1;

else

return 0;

}

int ispositive(int num1)

{

if (num1 > 0)

return 1;

else

return 0;

}

void option1(char let1, int w)

{

if (let1 == 'A')

{

for (int i = 1; i <= w; ++i)

{

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

{

cout << "\* ";

}

cout << "\n";

}

}

else if (let1 == 'B')

{

for (int y = 1; y <= w; y++)

{

for (int s = w - y; s>0; s--)

{

cout << " ";

}

for (int x = 1; x <= y; x++)

{

cout << "\*" << " ";

}

cout << endl;

}

}

else if (let1 == 'C')

{

for (int i = 1, k = 0; i <= w; ++i, k = 0)

{

for (int j = 1; j <= w - i; j++)

{

cout << " ";

}

while (k != 2 \* i - 1)

{

cout << "\* ";

k++;

}

cout << endl;

}

}

}

void option2(char let2, int g)

{

if (let2 == 'A')

{

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

{

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

{

cout << "\* ";

}

cout << "\n";

}

for (int i = g - 1; i >= 1; --i)

{

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

{

cout << "\* ";

}

cout << endl;

}

}

else if (let2 == 'B')

{

for (int y = 1; y <= g; y++)

{

for (int s = g - y; s>0; s--)

{

cout << " ";

}

for (int x = 1; x <= y; x++)

{

cout << "\*" << " ";

}

cout << endl;

}

for (int y = g - 1; y > 0; y--)

{

for (int s = 0; s < g - y; s++)

{

cout << " ";

}

for (int x = 1; x <= y; x++)

{

cout << "\*" << " ";

}

cout << endl;

}

}

else if (let2 == 'C')

{

for (int i = 0; i <= 2 \* g; i++)

{

for (int j = 1; j <= 2 \* g; j++)

{

if (i <= g)

{

if (j < g - i || j > g + i)

{

cout << ' ';

}

else

{

cout << '\*';

}

}

else

{

if (j < i - g || j > 3 \* g - i)

{

cout << ' ';

}

else

{

cout << '\*';

}

}

}

cout << endl;

}

}

}

void option3(char let3, int l)

{

if (let3 == 'A')

{

for (int i = l; i >= 1; --i)

{

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

{

cout << "\* ";

}

cout << endl;

}

for (int i = 1; i <= l-1; ++i)

{

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

{

cout << "\* ";

}

cout << "\n";

}

}

else if (let3 == 'B')

{

for (int y = 2; y <= l; y++)

{

for (int s = 5 - y; s>0; s--)

{

cout << " ";

}

for (int x = 1; x <= y; x++)

{

cout << "\*" << " ";

}

cout << endl;

}

}

else if (let3 == 'C')

{

for (int i = 1, k = 0; i <= l; i++, k = 0)

{

for (int j = 1; j <= l - i; j++)

{

cout << " ";

}

while (k != 2 \* i - 1)

{

cout << "\* ";

k++;

}

cout << endl;

}

for (int i = l-1; i >= 1; i--)

{

for (int j = 0; j < l - i; j++)

{

cout << " ";

}

for (int j = i; j <= 2 \* i - 1; ++j)

{

cout << "\* ";

}

for (int j = 0; j < i - 1; ++j)

{

cout << "\* ";

}

cout << endl;

}

}

}





