CP Lab-04 Tasks

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Lab 04: Loops in C++

Task 1:

Write a program to find the sum of first n Natural Numbers Positive integers such as 1, 2, 3…… n are known as natural numbers using for loop.

Task 2:

Take input positive and negative both numbers from the user and Write a program to find the sum of only positive numbers using while loop.

Task 3:

Take positive input from the user and Write a program to find the sum of only positive numbers using do-while loop, end program if negative number added.

Task 4:

Write a program to print tree structure by using loop by choice.

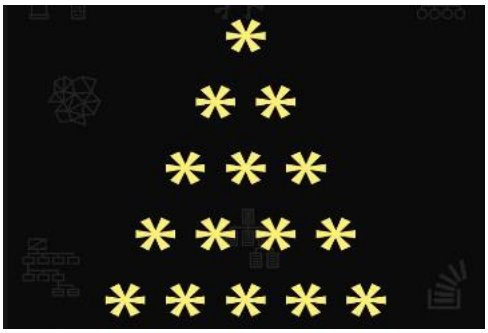
```
x
xx
xxx
xxxx
xxxxx
xx
xx
xx
xx
```

Write a

Task 5:

Write a C++ Program to display the pattern like pyramid using the alphabet.

OUTPUT:



Task 6:

Write a program that receives start value and end value then displays series of numbers from start to end value inclusive. Use do while to make sure user input smallest value first.

Note: The tasks are menu driven such that the user can select which task he/she wants to perform.

Code:

```
#include <iOStream>
using namespace std;

int main() {

char option;
do
{
char mainChoice, choice1, choice2, choice3, choice4, choice5, choice6;
cout << "Press 1 if you want to perform Task 1" << endl
<< "Press 2 if you want to perform Task 2" << endl
<< "Press 3 if you want to perform Task 3" << endl
<< "Press 4 if you want to perform Task 4" << endl
<< "Press 5 if you want to perform Task 5" << endl
<< "Press 6 if you want to perform Task 6" << endl;
cin >> mainChoice;

if (mainChoice == '1') {
cout << "**************************** Task-01
****************************" << endl;
do
{
int sum = 0;
int n;
cout << "Enter a number" << endl;
cin >> n;

for (int i = 1; i <= n; i++)
{
sum = sum + i;
}
cout << "The sum of first " << n << " natural numbers = " << sum <<
endl;
cout << "Press k if you want to perform this task again or any other key
to exit" << endl;
cin >> choice1;
} while (choice1 == 'k');
}

else if (mainChoice == '2') {
cout << "**************************** Task-02
****************************" << endl;
```

```
do {

int sum = 0;
int input;
cout << "Enter a number (Press 0 to quit)" << endl;
cin >> input;

while (input != 0) {
if (input > 0) {
sum = sum + input;
}
cout << "Enter a number (Press 0 to quit)" << endl;
cin >> input;
}
cout << "The sum of all Positive numbers = " << sum << endl;
cout << "Press k if you want to perform this task again or any other key
to exit" << endl;
cin >> choice2;
} while (choice2 == 'k');



}

else if (mainChoice == '3') {
cout << "**************************** Task-03
****************************" << endl;
do {

int sum = 0;
int input;
cout << "Enter a number (Enter a -ve number to quit)" << endl;
cin >> input;

do {
sum = sum + input;
cout << "Enter a number (Enter a -ve number to quit)" << endl;
cin >> input;
} while (input > 0);
cout << "The sum of all Positive numbers = " << sum << endl;
cout << "Press k if you want to perform this task again or any other key
to exit" << endl;
cin >> choice3;
} while (choice3 == 'k');
}

else if (mainChoice == '4') {
cout << "**************************** Task-04
****************************" << endl;
do {
```

```
int i, space, j;
for (i = 1; i <= 6; i++)
{
for (space = 6; space > i; space--)
cout << " ";
for (j = 0; j < i; j++)
cout << "* ";
cout << endl;
}

for (int l = 0; l < 5; l++) {
cout << "    **";
cout<<endl;
}


cout << "Press k if you want to perform this task again or any other key
to exit" << endl;
cin >> choice4;
} while (choice4 == 'k');
}

else if (mainChoice == '5') {
cout << "***************************** Task-05
*****************************" << endl;
do {

int i, space, j;
for (i = 1; i <= 6; i++)
{
for (space = 6; space > i; space--)
cout << " ";
for (j = 0; j < i; j++)


cout << "a ";
cout << endl;
}
cout << "Press k if you want to perform this task again or any other key
to exit" << endl;
cin >> choice5;
} while (choice5 == 'k');
}

else if (mainChoice == '6') {
cout << "***************************** Task-06
*****************************" << endl;
do
{
```

```
int startValue, endValue;
cout << "Enter Starting value" << endl;
cin >> startValue;

cout << "Enter ending value" << endl;
cin >> endValue;

do
{
cout << startValue << endl;
startValue++;
} while (startValue < endValue);

if (startValue > endValue)
{
cout << "Enter Starting value smaller than ending value!!" << endl;
}cout << "Press k if you want to perform this task again or any other
key to exit" << endl;
cin >> choice6;
} while (choice6 == 'k');
}

else
{
cout << "Invalid choice!!" << endl;
}

cout << "Press k if you want to continue or any other key to exit" <<
endl;
cin >> option;
} while (option == 'k');


return 0;
}
```

Outputs:

Task 01

```
E:\Study\Uni\CP lab\Assignment-04\All in one\x64\Debug\All in one.exe
Press 1 if you want to perform Task 1
Press 2 if you want to perform Task 2
Press 3 if you want to perform Task 3
Press 4 if you want to perform Task 4
Press 5 if you want to perform Task 5
Press 6 if you want to perform Task 6
1
****************************** Task-01 ******************************
Enter a number
7
The sum of first 7 natural numbers = 28
Press k if you want to perform this task again or any other key to exit
k
Enter a number
45
The sum of first 45 natural numbers = 1035
Press k if you want to perform this task again or any other key to exit
```

Task 02

```
1
Press k if you want to continue or any other key to exit
k
Press 1 if you want to perform Task 1
Press 2 if you want to perform Task 2
Press 3 if you want to perform Task 3
Press 4 if you want to perform Task 4
Press 5 if you want to perform Task 5
Press 6 if you want to perform Task 6
2
****************************** Task-02 ******************************
Enter a number (Press 0 to quit)
67
Enter a number (Press 0 to quit)
4
Enter a number (Press 0 to quit)
-97
Enter a number (Press 0 to quit)
32
Enter a number (Press 0 to quit)
-2
Enter a number (Press 0 to quit)
3
Enter a number (Press 0 to quit)
0
The sum of all Positive numbers = 106
Press k if you want to perform this task again or any other key to exit
```

Task 03

```
f
Press k if you want to continue or any other key to exit
k
Press 1 if you want to perform Task 1
Press 2 if you want to perform Task 2
Press 3 if you want to perform Task 3
Press 4 if you want to perform Task 4
Press 5 if you want to perform Task 5
Press 6 if you want to perform Task 6
3
**************************** Task-03 ****************************
Enter a number (Enter a -ve number to quit)
12
Enter a number (Enter a -ve number to quit)
43
Enter a number (Enter a -ve number to quit)
97
Enter a number (Enter a -ve number to quit)
43
Enter a number (Enter a -ve number to quit)
1
Enter a number (Enter a -ve number to quit)
3
Enter a number (Enter a -ve number to quit)
-6
The sum of all Positive numbers = 199
Press k if you want to perform this task again or any other key to exit
```

Task 04

```
d
Press k if you want to continue or any other key to exit
k
Press 1 if you want to perform Task 1
Press 2 if you want to perform Task 2
Press 3 if you want to perform Task 3
Press 4 if you want to perform Task 4
Press 5 if you want to perform Task 5
Press 6 if you want to perform Task 6
4
**************************** Task-04 ****************************
     *
    * *
   * * *
  * * * *
 * * * * *
* * * * * *
    **
    **
    **
    **
    **
Press k if you want to perform this task again or any other key to exit
```

Task 05

```
d
Press k if you want to continue or any other key to exit
k
Press 1 if you want to perform Task 1
Press 2 if you want to perform Task 2
Press 3 if you want to perform Task 3
Press 4 if you want to perform Task 4
Press 5 if you want to perform Task 5
Press 6 if you want to perform Task 6
5
**************************** Task-05 ****************************
     a
    a a
   a a a
  a a a a
 a a a a a
a a a a a a
Press k if you want to perform this task again or any other key to exit
```

Task 06 input 1

```
d
Press k if you want to continue or any other key to exit
k
Press 1 if you want to perform Task 1
Press 2 if you want to perform Task 2
Press 3 if you want to perform Task 3
Press 4 if you want to perform Task 4
Press 5 if you want to perform Task 5
Press 6 if you want to perform Task 6
6
**************************** Task-06 ****************************
Enter Starting value
5
Enter ending value
13
5
6
7
8
9
10
11
12
Press k if you want to perform this task again or any other key to exit
```

Task 06 input 2

```
Press k if you want to perform this task again or any other key to exit
k
Enter Starting value
5
Enter ending value
2
5
Enter Starting value smaller than ending value!!
Press k if you want to perform this task again or any other key to exit
```