// Assignment#2

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For all the assignments you have to write appropriate comments. Total assignment 30 points. 2 Points for each question goes for appropriate comments and naming conventions.

Submit all assignments in a word document. Write your programs in your favorite editor or IDE, execute it and copy the code into a word document.

1. Write a program to print sum of all the numbers between 25 and 75. 25+26+27+..74+75

#include<iostream>

using namespace std;

int main() {

//give the initial value 0 to sum because it will use to add

int sum = 0;

//ues for loop to get the number from 25 to 75

for(int i=25; i<=75; i++){

//keeping add each number to the sum

sum = sum + i;

}

//cout the final answer

cout << "Total sum add from 25 to 75 is " << sum << endl;

return 0;

}

2. Write a program to get an input number from user and find its factorial.

#include<iostream>

using namespace std;

int main() {

//give the initial value 1 to factorial because it will use to multiply

int number,factorial = 1;

//Notice the user to enter a number

cout << "enter your number: " << endl;

cin >> number;

//use for loop to multiply the factorial

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

//keeping multiply each number we get every time

factorial = factorial \* i;

}

//print the final answer

cout << "The factorial of this number is " << factorial << endl;

return 0;

}

3. Write a program to get numbers from the user and find the total sum until user enters a negative number.

#include<iostream>

using namespace std;

int main() {

//give the initial value 0 to sum, and flag=1 to run in the while loop

int sum=0,flag=1,n;

//use while loop to keep add a number adding

while(flag==1){

//notice the user to enter a number

cout << "enter a number you want to add: " << endl;

cin >> n;

//use if-else to consider whether the enter value is good to run

if(n>=0){

//keeping add to the sum

sum = sum + n;

//print the sum

cout << "the sum is " << sum << endl;

}

//if the enter is negative, change the flag value and jump out of the loop

else{

flag==0;

//telling the addition is finish

cout << "addition end" << endl;

break;

}

}

return 0;

}

4. Write a program to get a number from user and print sum of all the digits in that number. If user enters 239 output should be 2+3+9

#include<iostream>

using namespace std;

int main() {

//declare the data type of the number that user will enter and the sum

//gie the initial value 0 to sum

int number,sum=0,a;

//notice the user to enter a number

cout << "enter a number: " << endl;

cin >> number;

//use wihile loop to keep it add

while(number > 0){

//calculate the reminder

a=number%10;

//keeping add to the sum

sum = sum + a;

//divide to 10 for next digit

number = number/10;

}

//print the sum

cout << "sum of all the digits is " << sum << endl;

return 0;

}

5. write a program to get a 3 digit number and check if it is armstrong or not.

A number is armstrong if sum of cubes of each digit is equal to number 371 = 3^3 +7^3 +1^3

#include<iostream>

//cmath library to calculate the power

#include<cmath>

using namespace std;

int main() {

//declare the data type of the number that user will enter and the sum

//give the initial value 0 to sum

int number,cubesum=0,a,originalNumber;

//notice the user to enter a number

cout << "enter a number: " << endl;

cin >> number;

//store the original value

originalNumber = number;

//use while loop to keep it add

while(number > 0){

//calculate the reminder

a=number%10;

//calculate the cubesum

cubesum = cubesum + pow(a,3);

//divide to 10 for next digit

number = number/10;

}

//print the sum

cout << "sum of all the digits is " << cubesum << endl;

//use if-else to consider the numbers are same or not

//print the result

if(orignalNumber == cubesum){

cout << orignalNumber << " is armstrong" << endl;

}else

{

cout << orignalNumber << " is not armstrong" << endl;

}

return 0;

}

6. Write a program to get number from user and print the following pattern.

1

22

333

4444

..

second pattern

1

12

123

1234

12345

3rd pattern

1

12

123

1234

12345

#include<iostream>

using namespace std;

int main() {

//declare the data type

int i,j,k,l,row;

//notice the user to enter a number for the row

cout << "enter the value for row: " << endl;

cin >> row;

//set the first pattern for original pattern while comparing other parttern

cout << "original pattern" << endl;

//use for loop to get the row

for(i=1;i<=row;i++){

//use for loop inside to get the number for each row

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

//print the value we want

cout << i;

}

cout << endl;

}

//print the second pattern

cout << "second pattern(add one row)" << endl;

//add one row here

for(i=1;i<=(row+1);i++){

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

//print out j for the increasing number

cout << j;

}

cout << endl;

}

//print the 3rd pattern

cout << "3rd pattern" << endl;

for(i=1;i<=row;i++){

//print the space that before the number

for(k=40;k>=i;k--){

cout << " ";

}

//print the middle number

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

cout << j << " ";

}

//print the space after the number

for(l=40;l>=i;l--){

cout << " ";

}

cout << endl;

}

return 0;

}