

23
23

Name:- Syed Shayan Mustafa

Roll no:- 23k-6100

Department:- EE

Assignment no:- 2

Course:- Programming Fundamentals
(cs1002)

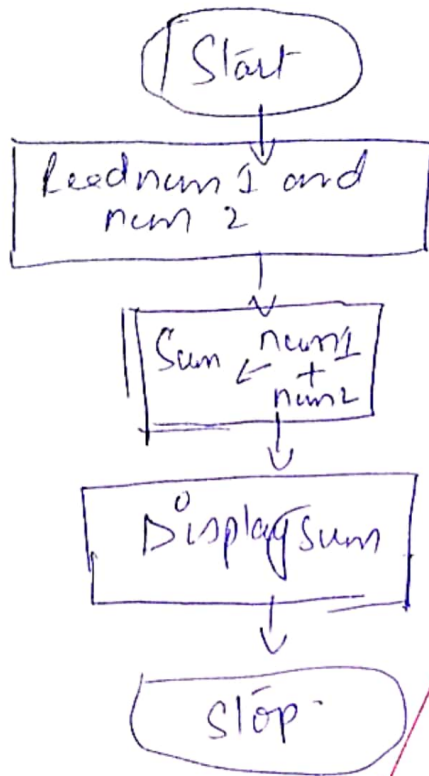
Section:- A

Submission Date:-

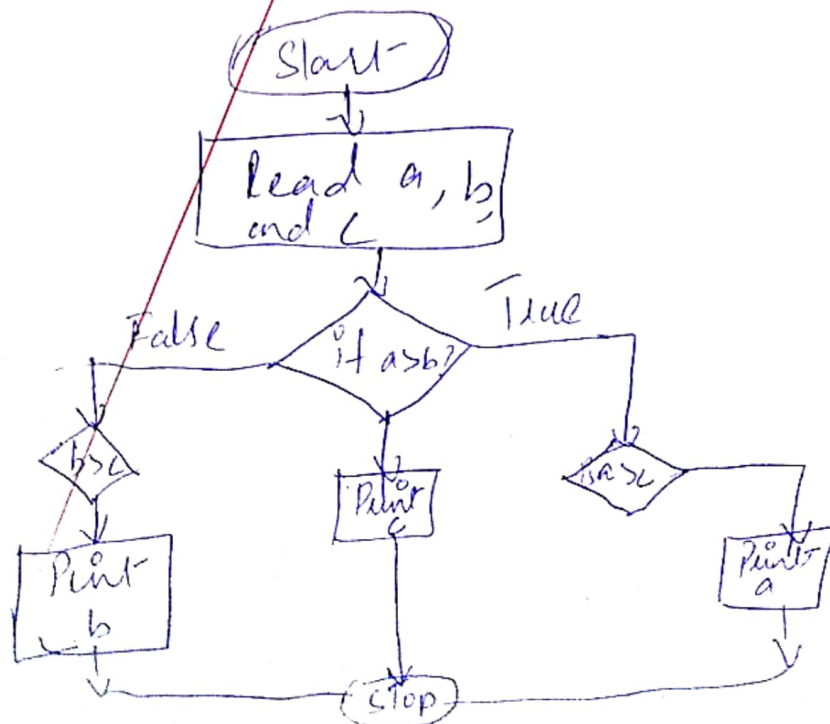
26-10-2023

Develop flowchart and pseudo codes.

1 Draw a flowchart to add two numbers entered by user.



2) flowchart for largest among three numbers



c) Write pseudo code to find perimeter, area of rectangle.

Step 1:-

Create length of rec from user.

Step 2:-

Create width of rec from user.

Step 3:-

$$\text{Area} = l \times b;$$

Step 4:-

$$\text{Perimeter} = 2 * (l + w).$$

Step 5:-

Display Area and perimeter of rec.

d) Pseudo code calculating sales tax and price of item sold in a particular state.

Data:-

Sales Tax of state is "4%."

Sales Tax of city is "1.5%."

If item costs more than \$50,000, then "10%."

1) Create price of item.

2) Find sales tax, Sales tax = price of item * 0.04

3) Find city tax, City Tax = price of item * 0.015

if (original price > \$50,000)

luxury tax = price of item * 0.1;

else

luxury tax = 0.

Total sales tax = city + state + luxury tax;

Amount due = original price + Total sales tax;

Write pseudo code to calculate and display grade of each student and their average.

Step 1:-

Read all 5 test marks for student from user

Step 2:-

check condition for all marks.

if (marks > 90)

{

grade = A

if (marks > 86)

{

grade = B

if (marks > 70)

{

grade = C

Problem 1 (1)

Block 1

Block 1

Block 1

Block 1 - Sum of all letters

Class Average = Average / no of students

Block 1 - Develop C++ code and some logical, if functions

Problem 1 -

include <iostream>
using namespace std;
int main ()

int a, b;
cin >> a;

b = 2 * a;

cout << "The value of a is " << a << endl;
cout << "The value of b is " << b << endl;


```
out << "The code is working fine";  
out << "\n\t" << "The program is very easy" << endl;  
system("Pause");
```

<u>Output:-</u> a = 4 The value of a is 4 The value of b is 8 The code is working fine

*(2) Logical Questions:-

We prefer ASCII code over Unicode because it requires only 1 byte for representation while unicode typically takes 2 bytes.

The advantage of adding a header file with double quotes makes our system understand that these header file are undefined functions and are not built-in and we use it when we define our own function. Yes, on OS other than Windows it will not work, cause it is Windows oriented statement.

Alternative is `get-char()`;

1 We define a variable in C++, right before using it.

6) This is not recommended; because many of the inbuilt functions of C++ are defined using underscore () in styling, so it's with built-in functions.

Q 30: Develop C++ code :-

a) Program for displaying size of data types.

```
#include <iostream>
using namespace std;
int main ()
{
```

Output:-

```
The size of char is 1
The size of int is 4
The size of short int is 2
The size of long int is 8
The size of float is 4
The size of double is 8
```

```
cout << "The size of char is : " << sizeof(char) << endl;
cout << "The size of int is : " << sizeof(int) << endl;
cout << "The size of short int : " << sizeof(short) << endl;
cout << "The size of long int : " << sizeof(long) << endl;
cout << "The size of float : " << sizeof(float) << endl;
cout << "The size of double : " << sizeof(double) << endl;
cout << "The size of wchar_t : " << sizeof(wchar_t) << endl;
system("pause");
}
```

Program to add three floats.

```
#include <iostream>
using namespace std;
int main();
```

```
float a, b, c, d;
```

```
cout << "Enter first number" << endl;
cin >> a;
```

```
cout << "Enter second number" << endl;
cin >> b;
```

```
cout << "Enter third number" << endl;
cin >> c;
```

```
d = a + b + c;
```

```
cout << "The sum is =" << d << endl;
system("Pause");
```

```
}
```

Output:-

Enter first number 5
Enter second number 6
Enter third number 8
The sum is = 19

1 Program to convert seconds entered in hour second minute.

```
#include <iostream>
using namespace std;
int main();
```

Out-put:-

Enter seconds: 800
800 seconds are
equal to 0:13:20

```
int Total, sec, hrs, mins;
cout << "Enter seconds" << endl;
cin >> Total;
mins = Total / 60;
sec = Total % 60;
```



```
hrs = mins/60;
mins = mins%60;
cout
```

cout << total << " Seconds are equal to:"
 mins << " " << secs << endl;
 system("Pause");

}

Q4:- Develop C++ code:-

a) Predict output code;
 #include <iostream>
 using namespace std;
 int main()
 {

```
int a=3, b=9;
cout << a << " / " << b << endl;
a=b;
```

```
cout << a << " * " << b << endl;
```

```
int c=3, d=8;
```

```
cout << (c/d) << endl;
```

```
cout << (c/d) << endl;
```

```
c = c+d;
```

```
d = d*c;
```

```
cout << c << " * " << d << endl;
```

```
int e=10.7, f=10;
```

```
cout << (e+f) << " * " << e << endl;
```

Output:-	
3	9
9	9
3	9
0	19
11	-
20	-
0	-
0	-

```

    cout << (x/y) << endl;
    float x=50.1, int y=3;
    cout << (x/y) << endl;

```

1) Code to convert age of days in years.

```

    int t_d;
    cout << "Enter total days" << endl;
    cin >> t_d;

```

```

    int Y, m, d;

```

```

    Y = t_d / 365;

```

```

    m = t_d / 30;

```

```

    d = m / 12;

```

```

    m = m % 12;

```

```

    cout << t_d << " Are equal to " << Y << "

```

```

    m << " " << d << endl;

```

```

    system("Pause");

```

Code to fill empty space with dashes.

```

#include <iostream>
using namespace std;
int main ()

```

```

    int a1 = 18, a2 = 15, a3 = 22, s1 = 500, s2 = 500
    s3 = 1500;

```

Output:-

Enter total days 370
 370 Are equal to 1 year
 0 months 5 days.

Convert - hour : min : sec into seconds

H, M, S, ts;

char dm;

cout << "Enter the time in standard form" << endl;

cin >> H >> dm >> M >> dm >> S;

$$ts = (H * 360) + (M * 60) + S;$$

cout << H << " : " << M << " : " << S << " are
equal to " << ts << " seconds";

system("pause");

find vector b/w two points

float x₁, x₂, y₁, y₂, z₁, z₂;

char dm;

cout << "Enter co-ordinates of 1st point (x₁, y₁, z₁):";

cin >> x₁ >> dm >> y₁ >> dm >> z₁;

cout << "Enter co-ordinates of 2nd point (x₂, y₂, z₂):";

cin >> x₂ >> dm >> y₂ >> dm >> z₂;

cout << "The vector between two points is "

$$(x_2 - x_1, y_2 - y_1, z_2 - z_1)$$

system("pause");

Output:-

Enter co-ordinates of 1st point (x₁, y₁, z₁):
(2, 4, 6)

Enter co-ordinates of 2nd point (x₂, y₂, z₂):
(3, 5, 8)

The vector between two points is (1, 1, 2)

Output:

First bit: 1
Second bit: 1

The 11 of 1 and 1
The 11 of 1 and 1
The 11 of 1 and 1

1111 1111 1111 1111 1111 1111 1111 1111

1111 1111 1111 1111 1111 1111 1111 1111

1111 1111 1111 1111 1111 1111 1111 1111

1111 1111 1111 1111 1111 1111 1111 1111

1111 1111 1111 1111 1111 1111 1111 1111

Page 180- (Task)

1 year;

it x;

out << "Enter any year" << endl;

in >> year;

x = year % 4

if (x == 0) {

{

cout << year << " is a leap year" << endl;

}

else

{

cout << year << " year is not a leap year" << endl;

}

Output:-

Enter any year 2012

2012 is a leap year.

Page 190-

#include <iostream>

using namespace std;

int main ()

```

char ch;
cout << "Enter a character:" << endl;
cin >> ch;

```

```

if (ch == 'A' || ch == 'E' || ch == 'I' ||
    'O' || ch == 'U' || ch == 'a' || ch == 'e' ||
    ch == 'i' || ch == 'o' || ch == 'u').

```

```

{
    cout << ch << " is a vowel" << endl;
}

```

else

```

    cout << ch << " is not a vowel" << endl;
}

```

```

    system("pause");
}

```

Output:-

Enter a character: A
A is a vowel

Q) Page 20 and 21

```

char ch;

```

```

int a;

```

```

cout << "Enter a character:" << endl;
cin >> ch;

```

```

a = static_cast<int>(ch);

```

```

if (a >= 48 && a <= 57)

```

198- (Task) 0-

int num;

int r5, r9;

cout << "Enter a number" << endl;
cin >> num;

r5 = num / 5;

r9 = num / 9;

if (r5 == 0)

{

cout << "Number is a multiple of 5" << endl;

else if (r9 == 0)

{

cout << num << "Number is multiple of 9" << endl;

}

else if (r5 == 0 && r9 == 0)

{

cout << num << "The number is multiple of both 5 and 9" << endl;

}

Output:-

Enter a number: 18
number is a multiple of 9

g) Page 20 and 21:-

```
char ch;  
int a;  
cout << "Enter a character: " << endl;  
cin >> ch;  
a = static_cast<int>(ch);  
if (a >= 48 && a <= 57)
```

cout << "ch is a digit" << endl;

if (a >= 65 && a <= 90)

cout << "ch" << " Entered character is upper
case" << endl;

le

{
cout << ch << " Is a special character" << endl;
}
system("pause");
}

Output:-
Enter your grade A
Excellent
your grade is A.

6:- Page 12 -> Filing example:-

```
#include <iostream>  
#include <fstream>  
int main ()
```

```
{  
    if stream in file;  
    of stream out file;
```

```

infile << open("1511.txt");
outfile << open("1511avg.txt");
cout << "Processing data" << endl;
infile >> first name >> last name;

```

Output
no output
as if- got
stuck at

~~Output~~

```

outfile << " student name: " << first name  

<< last name << endl;

```

Q7:- (Switch problems)

```

#include <iostream>
using namespace std;
int main ( )
{

```

```

    char grade;
    cout << "Enter your grade" << endl;
    cin >> grade;
    switch (grade);

```

```

    case 'A':
    cout << "Excellent" << endl;
    break;

```

B:
C:
at LL "Well done" LL endl;
k;

B:
P

at LL "You passed" LL endl;

mak;

e 'F':

at LL "Better try again" LL endl;

mak;

fault:

cout << "Invalid grade" << endl;

cout << "Your grade is" << grade << endl;

return 0;

Out-put:-

Enter your grade A

Excellent-
your grade is A