Week 06

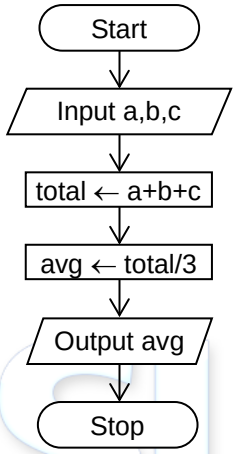
Structured Programming:

Programming that produces programs with clean flow, clear design, and a degree of modularity or hierarchical structure is called structured programming. The three basic constructs in structured programming are sequence (ordered set of statements), selection (conditional branch), and iteration (repletion / loop). There is no GOTO statement to jump to any place in the program.

Example Problems and Solutions (Flow Chart, Pseudo Code and C++ Code)

1. Sequence: Output the average of three given numbers

Flow Chart:



Pseudo Code:

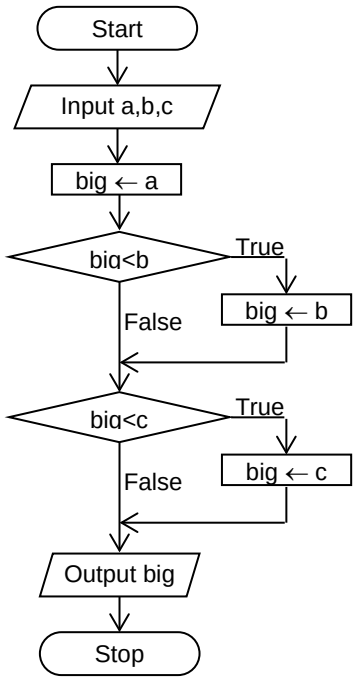
```
start
input a,b,c
total←a+b+c
avg←total/3
output avg
stop
```

C++ Code:

```
#include <iostream.h>
void main()
{
   int a, b, c, total;
   float avg;
   cout<<"Enter three numbers :";
   cin>>a>>b>>c;
   total=a+b+c;
   avg=total/3;
   cout<<"The average is "<<avg<<endl;
}
```

2. One-Way Selection (If Then): Output the biggest number of three given numbers

Flow Chart:



Pseudo Code:

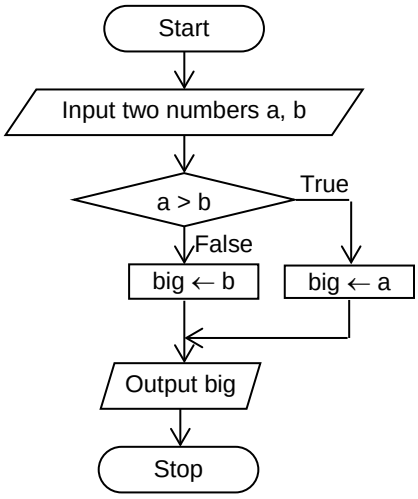
```
start
input a,b,c
big←a
if big<b then big←b
if big<c then big←c
output big
stop
```

C++ Code:

```
#include <iostream.h>
void main()
{
   int a, b, c, big;
   cout<<"Enter three numbers :";
   cin>>a>>b>>c;
   big=a;
   if (big<b)
      big=b;
   if (big<c)
      big=c;
cout<<"The big number is "<<big<<endl;}
```

3. Two-Way Selection (If Then Else): Output the big number of two given numbers

Flow Chart:



Pseudo Code:

```
start
input a,b
if a>b   then big=a
         else big=b
output big
stop
```

C++ Code:

```
#include <iostream.h>
void main()
{
   int a, b, big;
   cout<<"Enter two numbers :";
   cin>>a>>b;
   if (a>b)
      big=a;
   else
      big=b;
cout<<"The big number is "<<big<<endl;
}
```