

ITEC 113 Algorithms and Programming Techniques

Lab 1 Programming Exercises

Task 1: Display ‘Hello World’ on screen.

Desired Output:



Analysis

Input: none

Output : “Hello World”

Process: None

Algorithm

Flowchart	Pseudocode
A flowchart consisting of three rounded rectangular boxes connected by downward arrows. The top box is labeled "Start". The middle box is labeled "'Hello World'". The bottom box is labeled "End".	Display ‘Hello World’

C program

```
#include <iostream.h>

void main()
{
    cout<<"Hello World";
}
```

Task 2 : Add two numbers (10 and 20) and display the result

Desired Output



Analysis

Input: none
Output : sum
Process: num1=10, num2=20, sum=num1+num2

Algorithm

Flowchart	Pseudocode
<pre>graph TD; start([start]) --> Init[/Num1 <- 10
Num2 <- 20/]; Init --> SumCalc[/Sum <- Num1+Num2/]; SumCalc --> Sum([Sum]); Sum --> End([End]);</pre>	<p>Set Num1 to 10 Set Num2 to 20 Sum \leftarrow Num1+Num2 Display Sum</p>

C program

```
#include <iostream.h>

void main()
{
    int num1;
    int num2;
    int sum;
    num1 = 10;
    num2 = 20;

    sum = num1+num2;
    cout<<sum;
}
```

Task 3: Read two numbers from the keyboard. Add these two numbers and display the summation on screen.

(Version 1)

Desired Output



Analysis

Input: num1, num2

Output : sum

Process: sum=num1+num2

Algorithm

Flowchart	Pseudocode
<pre>graph TD; start([start]) --> input[/Num1
Num2/]; input --> process[Sum <- Num1 + Num2]; process --> output([Sum]); output --> end([End]);</pre> A flowchart starting with an oval labeled 'start'. An arrow points down to a parallelogram labeled 'Num1' and 'Num2'. Another arrow points down to a rectangle labeled 'Sum <- Num1 + Num2'. An arrow points down to an oval labeled 'Sum'. A final arrow points down to an oval labeled 'End'.	<p>Input Num1, Num2</p> <p>Sum \leftarrow Num1 + Num2</p> <p>Display Sum</p>

C program

```
#include <iostream.h>
void main()
{
    int num1;
    int num2;
    int sum;

    cout<<"Enter a number";
    cin>>num1;

    cout<<"Enter a number";
    cin>>num2;
    sum = num1+num2;
    cout<<sum;
}
```

Task 3: Read two numbers from the keyboard. Add these two numbers and display the summation on screen.

(Version 2)

Better Output



```
#include <iostream.h>
void main()
{
    int num1;
    int num2;
    int sum;

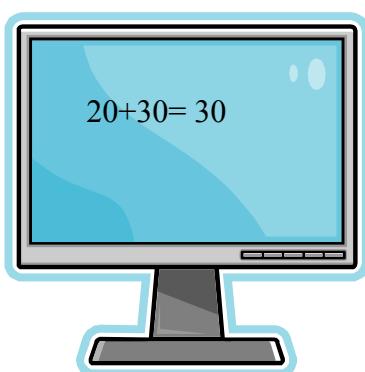
    cout<<"Enter a number";
    cin>>num1;

    cout<<"Enter a number";
    cin>>num2;

    sum = num1+num2;
    cout<<"The result is ";
    cout<<sum;
}
```

Task 3: Read two numbers from the keyboard. Add these two numbers and display the summation on screen.
(Version 3)

Better Yet



C Program

```
#include <iostream.h>
void main()
{
    int num1;
    int num2;
    int sum;

    cout<<"Enter a number";
    cin>>num1;

    cout<<"Enter a number";
    cin>>num2;

    sum = num1+num2;
    cout<<num1;
    cout<< "+";
    cout<<num2;
    cout<< "=";
    cout<<sum;
}
```