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Lecture - 3

If-Else Condition, Operators and Basic of loops

* Why We Write return 0 ?
return 0 tells that the program ends now. and after return 0 program is returned and terminated.

* Why "using namespace std" ?
We can define the properties of keywords using "using namespace std".

→
```
int main () {
    int Cout = 10;
    Cout << Cout;
}
```
→ It gives error because it can't understand.

→
```
int main () {
    int Cout = 10;
    std::Cout << Cout;
}
```
→ It Work properly.

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* Write a program to check given character is Vowel or Consonant.

Vowe : a e i o u

if ~~Vowel~~ ~~is~~ character is Vowel
then print Vowel

Otherwise
Print Consonant.

In this we use OR operator.
a OR e OR i OR o OR u

→
```
~~#include <stdio.h>~~
#include <iostream>
using namespace std;
int main() {
    char c = 'u';

if (c == 'a' || c == 'e' || e == 'i' || c == 'o' || c == 'u')
        Cout << " Vowel";
else
        Cout << " Consonant";
return 0;
}
```

Output = Vowel

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* Write a program to check whether given year is leap or not.

For leap:

year % 400 = 0
↳ then leap year

year % 4 = 0 & year % 100 != 0
↳ then leap year

Otherwise
↳ Not Leap year.

→
```
#include <iostream>
using namespace std;

int main() {
    int year;
    cin >> year;          // Take input by user.

    if (year % 400 == 0)
        cout << "leap year";
    else if (year % 4 == 0 && year % 100 != 0)
        cout << " leap year";
    else
        cout << " Not a leap year";

    return 0;
}
```

Output:
1996
Leap year

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* Given a number, check if it is divisible by 3 & 5?

Ex: 10

10 % 3 = 1 ✗

Not perfect

15

15 % 3 = 0 ✓

15 % 5 = 0 ✓

prefect

9

9 % 3 = 0 ✓

9 % 5 = 4 ✗

Not perfect.

Pseudcode:

```
if(num % 3 == 0) {
    if(num % 5 == 0) {
        Cout << " Perfect";
    } else {
        Cout << " Not perfect";
    }
}
else {
    Cout << " Not perfect";
```

Code:

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

int main() {
    cin >> num;
```

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```
if (num %3 == 0 && num %5 == 0)
        Cout << " perfect";
else
        Cout << " ~~Perfect~~ Not perfect";

    return 0;
}
```

→ Output:

1) 15
Perfect

2) 20
Not perfect

* For taking input From user:

```
cin >> variable_name;
```

cin : character input or Console input

>> → extraction

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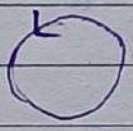
* Add two number by taking input from user:

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

int main() {
  int num1, num2;
  cin>> num1;
  cin>> num2;
  int sum;
  sum = num1 + num2;
  Cout << "sum is " <<sum;
  return 0;
}
```

Output
→ 24
→ 26
50

* Loops :



Repeat one task a finite number of time.

```
for (initialize ; condition ; decrement/operation/Increment) {
        ll lines of code
}
```

→ We want to print whole number from 1 to 100.

for this we have to write 100 line of code.

```
Cout << 1;
Cout << 2;
:
```

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From For loop We can Write easily.

```
for (int i = 1;  i <= 100; i++) {
        Cout << i;
    }
```

Code for printing 1 to n.

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

int main() {
    int n;
    cin >> n;

    for(int i = 1; i <= n; i++) {
        Cout << i << " ";
    }

    return 0;
}
```

Output

20

1 2 3 4 5 6 7 8 9
10 11 12 13 14 15 16 17 18
19 20

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* Pre increment & post increment :-

++num	num++
Sum = 0	first print then add.
num = 0;	num = num + 1
Sum = num++	
Sum = 0 + 1	
sum = 1 + 1	
= 2	

first add then print.

num = 0

Cout << ++num;	Cout << num++;
↓	↓
output = 0	output = 1.

* print all even number 1 to 20

2, 4, 6, 8, 10, 12, 14, 16, 18, 20

2%2 4%2 6%2
= 0 = 0 = 0

num%2 = 0

↳ then it is odd.

We can solve this by for loop to check all number present inside limit.

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Code :

```
#include <stdio.h>
using namespace std;

int main() {
    for (int i = 0; i <= 20; i++) {

        if (i % 2 == 0)
            Cout << i << " ";

    }
    return 0;
}
```

Output :-

2 4 6 8 10 12 14 16 18 20

* code for sum of first n natural number.

let n = 10;

start from 1; i = 1;

Initially, Sum = 0

Sum = 0 + 1 = 1

i = i + 1

Sum = 1 + 1 = 2 i = 3

Sum = 5

:

Sum = 55

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Code :

```
#include <stdio.h>
using namespace std;

int main() {
    int n;
    cin >> n;
    sum = 0;
    for (int i = 1; i <= n; i++) {
        sum = sum + i;
    }
    cout << sum;
    return 0;
}
```

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