

➤ Integer Overflow and underflow

Integer overflow occurs when the value assigned to an integer variable is more than maximum possible value. Integer underflow occurs when the value assigned to an integer variable is less than passable minimum value.

An integer variable can stored values from -32768 to 32767.

Write a Program that explain the concept of over flow and under flow?

```
#include<iostream>
Using namespace std;
Main()
{
Short test = 32767;
Cout<<test<<endl;    32767
test = test + 1;      -32768
Cout<<test<<endl;    32767
test = test -1;
Cout<<test<<endl;
}
```

➤ Variable

A variable is a named memory location or memory cell. It is used to store programs input data. The value of a variable may change during the execution of program.

➤ Variables declaration

The process of specifying the variable name and its type is called variable declaration.

Syntax

Data_type variable_name;

Example

```
int marks;
float average;
char grade;
double salary;
int ;
```

Rules for declaration

- The first character a variable must be a letter or underscore.
- Blank space are not allowed in variable names.
- Both upper and lower case are allowed.
- Special symbols cannot be used as variable name.
- Reserved words cannot be used as variable name.
- A variable can be up to 31 characters.
- A variable can be declared only for one data type.

Some example of valid variable. **Marks** **sub1** **_test** **f_name**

➤ Variable initialization

The process of assigning a value to a variable at the time of declaration is known is **Variable initialization**. The **equal sign =** is use to initialize a variable. Variable name is given on left side and value is given on the right side of equal sign.

Syntax

```
Data_type name _variable = value;
```

Example

```
int m = 45;  
float average = 4.7;  
char grade = 'A';
```

➤ Constants

Constant is a quantity that cannot be changed during program execution.