CL1002 – Programming Fundamentals Lab

Lab # 07

Type Casting

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1. **Type Casting:**

Type Casting is basically a process in C in which we change a variable belonging to one data type to another one. In type casting, the compiler automatically changes one data type to another one depending on what we want the program to do. For instance, in case we assign a float variable (floating point) with an integer (int) value, the compiler will ultimately convert this int value into the float value. The process of casting allows the programmers to make such types of conversions explicit or even force it in cases where it wouldn't happen normally. There are two types of type conversion:

i. Implicit Type Conversion:

Also known as 'automatic type conversion'.

- Done by the compiler on its own, without any external trigger from the user.
- Generally, takes place when in an expression more than one data type is present. In such conditions type conversion (type promotion) takes placeto avoid loss of data.
- All the data types of the variables are upgraded to the data type of the variable with the largest data type.

Example:

```c
#include <stdio.h>
int main() {
 int i = 17;
 char c = 'c'; /* ascii value is 99 */
 float sum;
 sum = i + c;
 printf("Value of sum : %f\n", sum );
}
```

ii. Explicit Type Conversion:

This process is also called type casting and it is user defined. Here the user can type cast the result to make it of a particular data type.

```c
#include<stdio.h>
int main()
{
double x = 1.2;
// Explicit conversion from double to int
int sum = (int)x + 1;
printf("sum = %d", sum);
return 0;
}
```