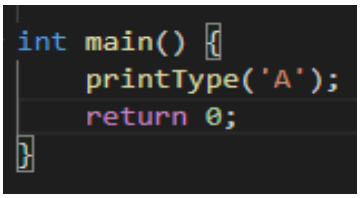
COURSE: (CL-1004) OBJECT ORIENTED PROGRAMMING LAB

LAB TASK # 6
WEIGHTAGE: 2

NOTE:
Only submit .cpp file of each question in a folder. Anyone who submits any other format file will get straight **ZERO.** Each question should have a separate .cpp file. Copy Paste or other UFM will also get **ZERO**. Use the following format for naming the folder Roll#_Name (P18-1234_NAME).

Q No.01: Write a program that check the type of the value and determine the data type of the value. In this program, you will develop a Type checking program (Type Checker).



```
int main() {
    printType('A');
    return 0;
}
```

If the argument of printType(true) is true or false, it will invoke a function inside and print a message "true is a boolean". If it is int 463287462 then it should display "4632874 is Integer". The sample output format is as follows:

1.24353 is double data type
334345345 is an integer data type
1 is boolean data type
A is a character data type

Q No.02: Write user defined function ***arrayFunction()*** in C++ which will initialize array by taking values from user at run time and then call this function in main function which will return this array from the calling function to the called function (to the main function) and then show all items of this array in main function using loop.

Q No.03: Write a user-defined function in C++ to display the multiplication of row element of two-dimensional array A[4][6] containing integer.

Q No.04: Write a user defined function named Upper-half() which takes a two dimensional array A, with size N rows and N columns as argument and prints the upper half of the array.

e.g.,

```
2 3 1 5 0                    2 3 1 5 0
7 1 5 3 1                      1 5 3 1
2 5 7 8 1  Output will be:       1 7 8
0 1 5 0 1                          0 1
3 4 9 1 5                            5
```

5. Write a function in C++ which accepts a 2D array of integers and its size as arguments and displays the elements of middle row and the elements of middle column.
[Assuming the 2D Array to be a square matrix with odd dimension i.e. 3x3, 5x5, 7x7 etc...]
Example, if the array contents is

```
3  5  4
7  6  9
2  1  8
```

Output through the function should be:
Middle Row : 7 6 9
Middle column : 5 6 1