Lecture 9.5

Pointer to pointer (**)

What you already know about pointer

- pointers are just one memory block that store the address of another object/variable.

Pointer to a variable

Example:

```
int b; // b is a variable
b = 5;
int * a; //pointer a, initially pointing to nowhere
a = &b; // pointer a is pointing to b which is an
           //integer variable
```

Pointer to pointer

- It is not necessary that pointer just points to variable or object. Pointer can also point to another pointer.

Example:

```
int c = 5;
int d = 10;

int *b = &c; //b is pointing to c
```

Example (cont)

```
//int **a; //pointer to pointer
//a = &b; //a is pointing to b which is a pointer.

//or you can also use the following syntax

int**a = &b;  //a is pointing to b which is a pointer itself
              //hence, *a is an address of b
              // and **a is a value of b i.e. where b
              //is pointing
```

Example (cont)

```
cout<<"intial value of **a: "<<**a<<endl;

 b = &d; //pointer is changed. now b is pointing
              //to d

cout  <<“value of **a after b* is changed: ”
        <<**a<<endl;
```

- conclusion: **a always points to the location where b* points to.

Example (cont)

- Changing location of *b reflects on **a, similarly changing the location of **a would change the location of *b;

```
*a = &c;
cout  <<“value of *b after **a is changed: ”
        <<*b<<endl;
```