

An illustration of a collaborative workspace from a top-down perspective. The background is a teal color. In the center, the text "Information Storage & Management" is written in a large, white, sans-serif font. Below it, the text "Lab 1" is written in a smaller, red, sans-serif font. Surrounding the text are various icons and illustrations of hands interacting with technology and documents. At the top left, hands are writing in a spiral notebook. At the top right, a hand points at a laptop screen while another hand uses a mouse. In the middle left, a hand points at a tablet displaying a bar chart. In the middle right, a hand uses a red pen to mark a document. At the bottom left, hands are typing on a laptop. At the bottom center, hands are holding a document with a bar chart. At the bottom right, hands are using a laptop. Other items include a coffee cup, a smartphone, a USB drive, and several small notepads and pencils scattered around the workspace.

Information Storage & Management

"Lab 1"

Agenda



- ❑ **What's the meaning of "Information Storage & Management."**
- ❑ **Technology that we will use?!!**
- ❑ **The Benefits of this technology.**
- ❑ **Start To work**
 - **5 Steps to treat with files "C++"**
 - **Writing on files**
 - **Reading from files**
 - **Modes**

An illustration of a collaborative workspace from a top-down perspective. The background is a teal color. In the center, a white rectangular box contains the text "What's the meaning of 'Information Storage & Management.'". Surrounding this box are various hands interacting with different objects: a hand writing in a spiral notebook (top left), a hand pointing at a laptop screen (top right), a hand using a mouse (top right), a hand pointing at a tablet displaying a bar chart (middle left), a hand holding a pen over a document with a bar chart (middle right), a hand typing on a laptop (bottom left), a hand pointing at a laptop screen displaying a bar chart (bottom right), and a hand pointing at a document with a bar chart (bottom center). Other objects include a coffee cup (top left), a USB drive (top right), a smartphone (bottom center), and several small notepads and pencils scattered around. The overall theme is information management and collaboration.

What's the meaning of "Information Storage & Management."

An illustration of a collaborative workspace from a top-down perspective. The background is a teal color. In the center, a white rectangular box contains the text. Surrounding this box are various hands interacting with technology: a hand writing in a spiral notebook (top left), a hand using a laptop mouse (top right), a hand pointing at a laptop screen (top right), a hand holding a tablet with a bar chart (left), a hand writing on a document with a red pen (right), a hand pointing at a tablet (bottom left), a hand typing on a laptop (bottom left), a hand holding a smartphone (bottom center), a hand pointing at a document with a bar chart (bottom center), and a hand pointing at a laptop screen (bottom right). There is also a coffee cup (top left), a small notepad with a pencil (top center), a USB drive (top right), and a clipboard with a pencil (bottom right).

Technology that we will use?!!

“File Systems – C++ - Visual studio”



The Benefits of this technology.

Functions – OOP – files operation

An illustration of a collaborative workspace from a top-down perspective. The background is a teal color. In the center, a white rectangular box contains the text "Start To Work". Surrounding this box are various hands and objects: a hand writing in a spiral notebook (top left), a hand pointing at a laptop screen (top right), a hand using a mouse (top right), a hand pointing at a tablet (middle left), a hand holding a pen over a document with a bar chart (middle right), a hand pointing at a laptop screen (bottom right), a hand typing on a laptop (bottom left), and a hand pointing at a document with a bar chart (bottom center). Other objects include a cup of coffee, a smartphone, a USB drive, and several small notepads and pencils.

Start To Work

5 steps to work with files



1. Include header file **<fstream>**
2. Create object (**ofstream** **ifstream** **fstream**)
3. Open file
4. Do the operation on file
5. Close file

Writing on files



```
#include <iostream>
#include <fstream> //step 1
using namespace std;

int main()
{
    // step 2 create object to write
    ofstream file;
    // step 3 open file
    file.open("fileName.txt");
    // step 4 do operation in file
    file<<" Hello world ";
    // step 5 close file
    file.close();
    system("pause");
    return 0;
}
```

Reading from files



```
#include <iostream>
#include <fstream> //step 1
#include <string>
using namespace std;
int main()
{
    // step 2 create object to read
    ifstream file;
    // step 3 open file
    file.open("fileName.txt");
    // step 4 do operation in file
    string s;
    file>>s;
    cout<<s<<endl;
    // step 5 close file
    file.close();
    system("pause");
    return 0;
}
```

File access modes



C++ file access modes

Mode	Meaning
<code>ios::in</code>	Open the file for input
<code>ios::out</code>	Open the file for output
<code>ios::ate</code>	Position file pointer (file window) at the end of file - by default it is positioned at the beginning of the file
<code>ios::app</code>	Open file for appending at end of file
<code>ios::trunc</code>	Discard existing contents when opening the file - this is the default for <code>ios::out</code>
<code>ios::binary</code>	Set data encoding to binary - the default is text



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

int main()
{
    fstream file;
    file.open("fileName.txt", ios::app);
    file<< "another sentence" <<endl;
    file.close();
    system("pause");
    return 0;
}
```

Assignment



1- Write a program that writes an integer, a floating-point value, and a string to a text file.

2- Write a program that reads an integer, a floating-point value, and a string from a text file & prints the values to the user.

3- Write a C++ program that writes your own data to a text file closes this file & then reopen the file and appends more data in it again.



THANKS!