Day 12

File IO

- If we want to do file input and output operation then we should import java.io package.
- Variable is a container which is used to store data temporarly in RAM.
- File is a permanent container which is used to store data on HDD.
- File is Non Java resource / OS resource.
- In Java, File is a class which is declared in java.io package.
- Uses of java.io.File class
    1. To create new empty file / directory.
    2. To delete existing file / directory
    3. To read metadata of exisiting File/Directory/Drive.
- Instance of java.io.File is not a operating system file rather it represents OS File / Directory / Drive.
- Constructor of File Class:
    1. public File(String pathname)

```
String pathname = "Dac.txt";
File file = new File( pathname );
```

- Path : "D:\Cdac\SunBeam\Karad\Dac.txt";
    - D:/ : Drive
    - CDAC,SunBeam, Karad : Directories
    - Dac.txt : File
    - \ : Path Seperator Character
    - Path represent location of file or directory.
    - If we try to create/locate file without specifying path then it gets created/located inside current project directory.
- Methods of File Class:
    1. public long getFreeSpace()
    2. public long getUsableSpace()
    3. public long getTotalSpace()
    4. public boolean isDirectory()
    5. public String[] list()
    6. public File[] listFiles()
    7. public boolean isFile()
    8. public boolean isHidden()
    9. public boolean exists()
    10. public boolean createNewFile() throws IOException
    11. public boolean mkdir()
    12. public boolean delete()
    13. public long lastModified()

14. public long length()
15. public String getParent()
16. public String getName()

- If we want to perform operations on file then we should use stream.
- Stream is an abstraction(object) which is used to produce(write) or consume(read) information from source to destination.
- java.io.Console class represents console/terminal.
- Standard streams of java which is associated with Console

1. System.in : Keyborad
2. System.out : Monitor
3. System.err : Monitor --> Error Stream

- java.io.File class represent File.
- If we want to perform read write operations on file then we should use streams declared in java.io package.
- Types of File

1. Text File
2. Binary File

Text File

- e.g. .txt, .rtf, .doc, .docx, source files(.c, .java etc), .xml
- Text Editor : Notepad, gedit/vi/vim, textedit, MSVS code, Edit Plus
- We can read text file using any text editor.
- If we want to save data in human redable format then we should create text file.
- It requires more processing hence it is slower in performance.
- If we want to manipulate text file then we should use Reader, Writer and their sub class.
- Classes required to manipulate text file:

1. Reader
2. Writer
3. FileReader
4. FileWriter
5. BufferedReader
6. BufferedWriter
7. InputStreamReader
8. OutputStreamWriter
9. PrintWriter

Binary File

- e.g .mp3, .jpeg, .obj/.o, .class etc
- If we want to read binary file then we must use specific program

- It doesn't save data in human readable format.
- Since it requires less processing it is faster than text file.
- If we want to manipulate binary file then we should use InputStream, OutputStream and their sub classes.
- Classes required to manipulate Binary file:

1. InputStream
2. OutputStream
3. FileInputStream
4. FileOutputStream
5. BufferedInputStream
6. BufferedOutputStream
7. DataInputStream
8. DataOutputStream
9. ObjectInputStream
10. ObjectOutputStream
11. PrintStream

- FileOutputStream
    - It is used to write data to the file represented by the specified File object.
    - It is used to write single byte at a time inside file.
    - constructor : public FileOutputStream(File file)throws FileNotFoundException

```
String pathname = "File.dat";
File file = new File( pathname );
FileOutputStream outputStream = new FileInputStream( file );
```

- or

```
String pathname = "File.dat";
FileOutputStream outputStream =
            new FileInputStream( new File( pathname) );
```

- or

```
FileOutputStream outputStream =
            new FileInputStream( new File( "File.dat") );
```

- FileInputStream
    - It is used to read data from file represented by the specified File object.

Socket Programming

- URL
    - http://www.sunbeaminfo.com:8080/Dac/Index.html

- Protocol:
    - tcp, udp, ftp, telnet, http, https
- Host Name:
    - www.sunbeaminfo.com
- Port Number:
    - 8080
    - 0 to 1024
- Path
    - /Dac/Index.html
- Socket :