CSE 1200

Software Development - I

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File

- Introduction
- File types, modes, declaration
- Reading, writing, appending of file in text mode
- Reading and writing of structures from file in text mode
- Binary file modes, declaration
- Reading, writing, appending of file in binary mode
- Reading and writing of structures from file in binary mode

Introduction

In a real life software, we need to work with **persistent data**- data that will exist even if we shut down the program. For example, storing students' CGPA, ID, name etc. can be done using C File operations.

Files, structures, array- all of these take contagious memory space, pointer is needed to direct to the initial position of the allocated space.

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File Mode

We will work with two different file modes.

- **Text Mode:** In this mode, we use text files having “txt” as extension. They store data in ASCII format and are useful for simpler works and easy to read.
- **Binary Mode:** In this mode, we use binary files having “bin” as extension. They store data in binary format and are useful for storing structures and memory-efficiency.

File Operations

- In general, there are three basic file operations.
  - Reading- denoted with “r” /“r+”/ “rb”
  - Writing- denoted with “w” /“w+”/ “wb”
  - Appending- denoted with “a” /“a+”/ “ab”

Table: Summary of different file modes (1 => true, 0 => false):

Mode	Read	Write	Crate New File*	Truncate
r	1	0	0	0
w	0	1	1	1
a	0	1	1	0
r+	1	1	0	0
w+	1	1	1	1
a+	1	1	1	0
*Creates a new file if it doesn't exist.				

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Reading, writing, appending of file in text mode

We will see some code (1,2,3)

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Reading and writing of structures from file in text mode

What we want to do:

Storing student data in a file. The Student structure will have three fields: id, name, cgpa.

We will see some code (4)

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Reading and writing of structures from file in binary mode

What we want to do:

Storing student data in a file. The Student structure will have three fields: id, name, cgpa.

We will see some code (5)