COMP90041

Programming and Software Development

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Lab 10

Andrew Naughton

andrew.naughton@unimelb.edu.au

Outline

- Files
- Inspect File Properties
- Reading .txt
- Writing .txt
- Reading and Writing .dat
- Exercises

Files

- We consider two types in this subject:
  - Text files
    - .txt
    - Human readable
  - Binary Files
    - .dat
    - Program readable
    - More efficient processing of data, as no need to convert to human readable format

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Inspect File Properties

- File class
  - `File file = new File(“afile.txt”);`
  - `File folder = new File(“aFolder/”);`

- Check for existence
  - `file.exists() : boolean`
- Check for permissions (read or write)
  - `file.canRead() : boolean`
- Delete file
  - `file.delete() : void`
- Retrieve absolute path (e.g. “C:\temp\afile.txt”)
  - `file.getAbsolutePath() : String`

Reading .txt

- We have two options:
  - Scanner class
    - `new Scanner(new FileInputStream(“afile.txt”));`
    - Requires one import
  - BufferedReader class
    - `new BufferedReader(new FileReader(“afile.txt”));`
    - Requires two imports
    - Cannot read a number, must read as string and then convert

Writing .txt

- We have two options:
  - PrintWriter class
    - `new  PrintWriter(new  FileOutputStream(“afile.txt”, <true|false>);`
    - `true` -> append to end of file
    - `false` -> write over existing content
  - BufferedWriter class
    - `new BufferedWriter(new FileWriter(“afile.txt”);`

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Reading and Writing .dat

- Reading
- ObjectInputStream class
    - `new ObjectInputStream(new FileInputStream("afile.dat"));`

- Writing
- ObjectOutputStream class
    - `new ObjectOutputStream(new FileOutputStream("afile.dat"));`

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Reading and Writing .dat

- Can write objects such as a class object or array
  - `MyClass[] myArray = new MyClass[5];`
  - …
  - `oos.writeObject(myArray);`
  - MyClass must implement Serializable

- Can read back such objects
  - `MyClass[] myArray = (MyClass[]) ois.readObject();`
  - MyClass must implement Serializable
  - Must cast the read object

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Exercises