

CO558 DATABASE DESIGN

WEEK 1



TODAY'S SESSION

- **Define Key Database Terms**
- **Understand limitations of conventional data file processing systems**
- **Explain advantages of the database approach and examine risks/costs**

DATABASE

- **An organised collection of information that is held independently of the application that created it.**

IN THE OLD DAYS... DP DEPARTMENTS!

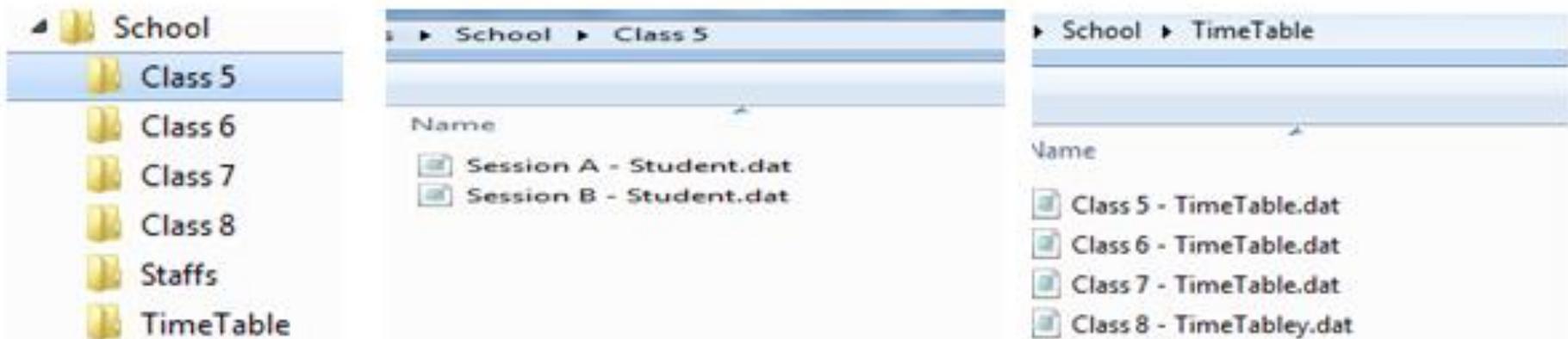


STATE OF THE ART TAPE SYSTEMS!



A FLAT FILE DATABASE

- Storing School / College details in flat files



Student.dat - Notepad

STUDENT_ID	STUDENT_NAME	ADDRESS	AGE
100	Alex	Lakeside 12	
101	Smith	Troy	11
104	Joseph	Holland	12

Student.dat - Notepad

STUDENT_ID,STUDENT_NAME,ADDRESS,AGE
100,Alex,Lakeside,12
101,Smith,Troy,11
104,Joseph,Holland,12

PROBLEMS WITH FLAT FILES

- **Data is grouped into files but no links between tables**
- **No method for detecting and rejecting duplicate data (redundant data)**
- **Changing the contents or format of one file can cause a failure in a different program accessing that data**

PROBLEMS WITH FLAT FILES

- **Hard to keep data consistent (where a student name or address is stored twice in two different files for example)**
- **It would be possible to delete the details of a class while students are still showing as enrolled to it in a different file (orphaning of data)**

PROBLEMS WITH FLAT FILES

- **Security is poor – anybody can access and change the file. No un/pw, no encryption**
- **No integrity checks incl. validation of data**
- **No method of “rolling-back” transactions**
- **Only one person/application can access the data at a time. No concurrent access**