

## Traditional File-based Systems

File-based System (Predecessor to the DBMS)

= A collection of application programs that perform services for the end-users such as the production of reports. Each program defines and manages its own data.

File-Based Approach - 1

## Traditional File-based Systems

- Information are stored in data files
- Each file is a sequence of records

Sno	Lname	Position	NIN	Bno
SL21	White	Manager	WK440211B	B5
SG37	Beech	Snr Asst	WL432514C	B3
SG14	Ford	Deputy	WL220658D	B3

- Eg., if each record contains 100 bytes of data, then the 1<sup>st</sup> record occupies the 1<sup>st</sup> 100 bytes in the file, the 2<sup>nd</sup> record occupies the 2<sup>nd</sup> 100 bytes in the file.

File-Based Approach - 2

## Traditional File-based Systems

A student record reporting program:

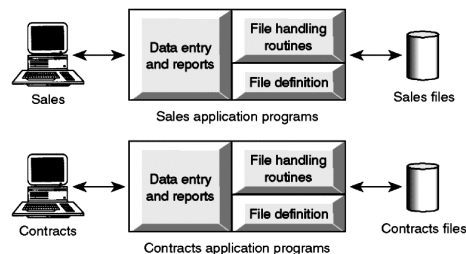
```
Struct STUDENT_RECORD
{ char StudentID[8];
  char Tutorial[3];
  int Mark;
}; /*totally 15 bytes*/

STUDENT_RECORD std_recs[50];
...
fread(std_recs, 15,50,file); /*read 50 student records*/
...
```

File-Based Approach - 3

## Traditional File-based Systems

An example: DreamHome, A property agent company



File-Based Approach - 4

## Traditional File-based Systems

*Sales Files*

**Property\_for\_Rent**(Property Number, Street, Area, City, Post Code, Property Type, Number of Rooms, Monthly Rent, Owner Number)

**Owner**(Owner Number, First Name, Last Name, Address, Telephone Number)

**Renter**(Renter Number, First Name, Last Name, Address, Telephone Number, Preferred Type, Maximum Rent)

*Contracts Files*

**Lease**(Lease Number, Property Number, Renter Number, Monthly Rent, Payment Method, Deposit, Paid, Rent Start Date, Rent Finish Date, Duration)

**Property\_for\_Rent**(Property Number, Street, Area, City, Post Code, Monthly Rent)

**Renter**(Renter Number, First Name, Last Name, Address, Telephone Number)

File-Based Approach - 5

## Traditional File-based Systems

Limitations of File-Based Approach:

- Separation and isolation of data
- Duplication of data
- Data dependence
- Incompatibility of files
- Fixed queries / proliferation of application programs

Reading: Database Systems (Connolly 2/ed)  
P. 12-14 Limitations of File-Based Approach

File-Based Approach - 6