# *Flat File System Approach*

- In a File System, data is directly stored in set of flat files.
- Flat file is not related to or does not contain any linkages to another file. It is generally used for stand-alone lists.
    Example- csv files (comma separated files), excel spreadsheets, text files, binary files
- Files scattered across different directories / folders
- Files may be in different formats
- stores data in a plain text format
- developed and implemented in the early 1970s by IBM

Flat File System Approach

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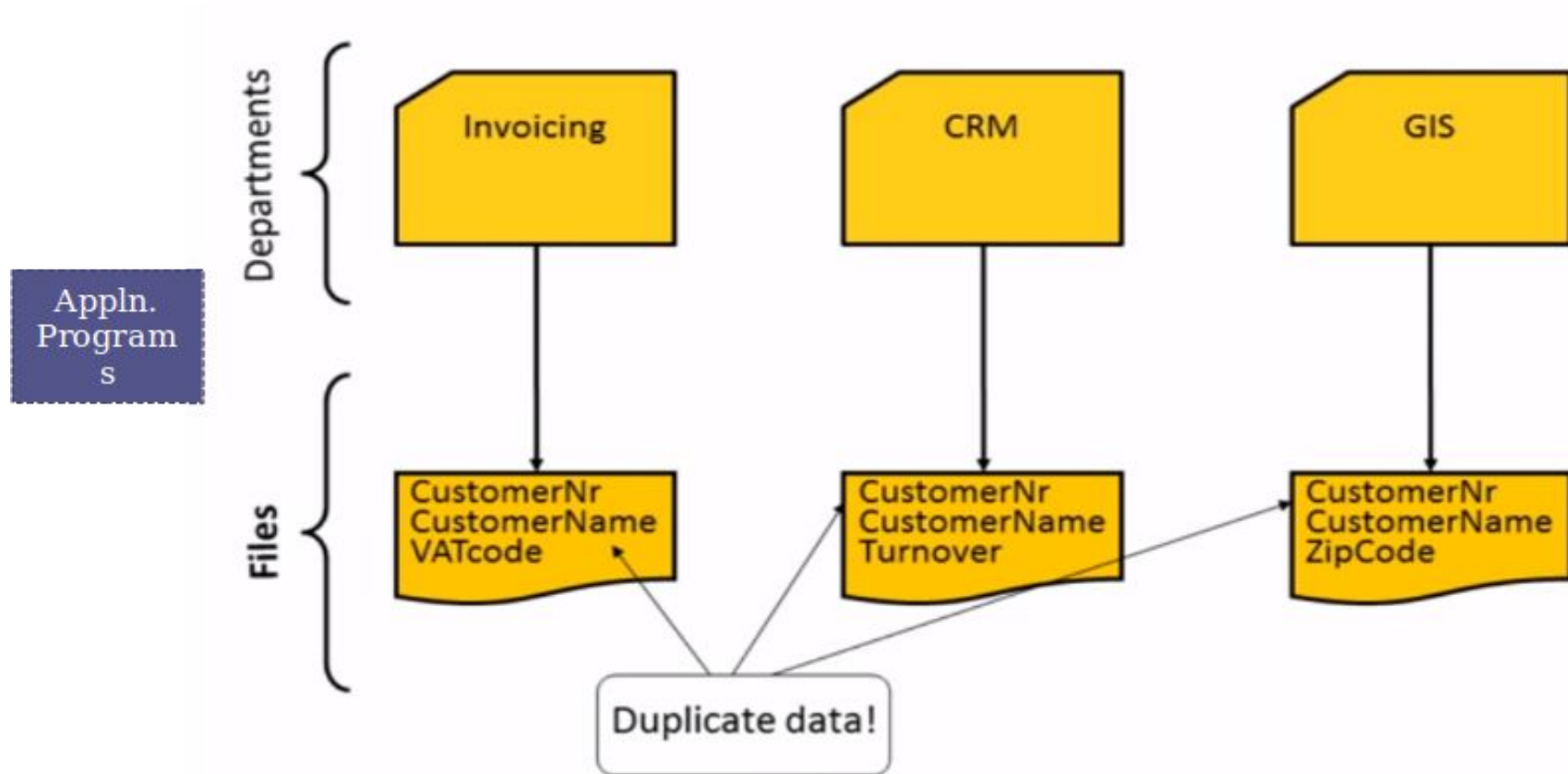
Flat File System Features

- Unstructured data - .txt, .csv, .xls
- Programs to access files - only possible if location of file on disk is known
- Complete file is loaded in RAM, and manipulation/ calculation is carried out
- Different programs for different requirements

Disadvantages of Flat File System

- Data redundancy and inconsistency
- Difficulty in accessing data
- Data isolation
- Integrity problems
- Atomicity of updates
- Concurrent access by multiple users not possible
- Security problems

File System Vs Database System –

 Consider Saving – bank enterprise
 keeps information about all customers & saving accounts.
 One way, Store all information in OS files
 TO allow user to manipulate data,
  system has no. of application programs, such as :

- a program to debit or credit an account
- a program to add new account
- a program to find balance of an account
- a program to generate monthly statements
- a program to generate list of all customers

 System programmer wrote above programs

Savings-bank enterprise

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CustPersonal.doc

```
CName
CAdd
CTel
CEmail
CAltAdd
Occupation
```

CustAccount.xlsx

```
CName
CAdd
CTel
CEmail

AcctNo
Balance
```

CLog.xlsx

```
CName
CAdd
CTel
CEmail
CAltAdd
AcctNo
Debit details
Credit details
```
→
```
Credit/ Debit
Amount
Date
Timing
FromWhom
```

CLoanReq.xlsx

```
CName
CAdd
CTel
CEmail
CAltAdd
Annual_Income
AcctNo
LoanType
LoanAmt
```

CLoan.xlsx

```
CName
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```

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   --- Integrity constraints (e.g. account balance > 5000)
   --- Hard to add new constraints or change existing ones

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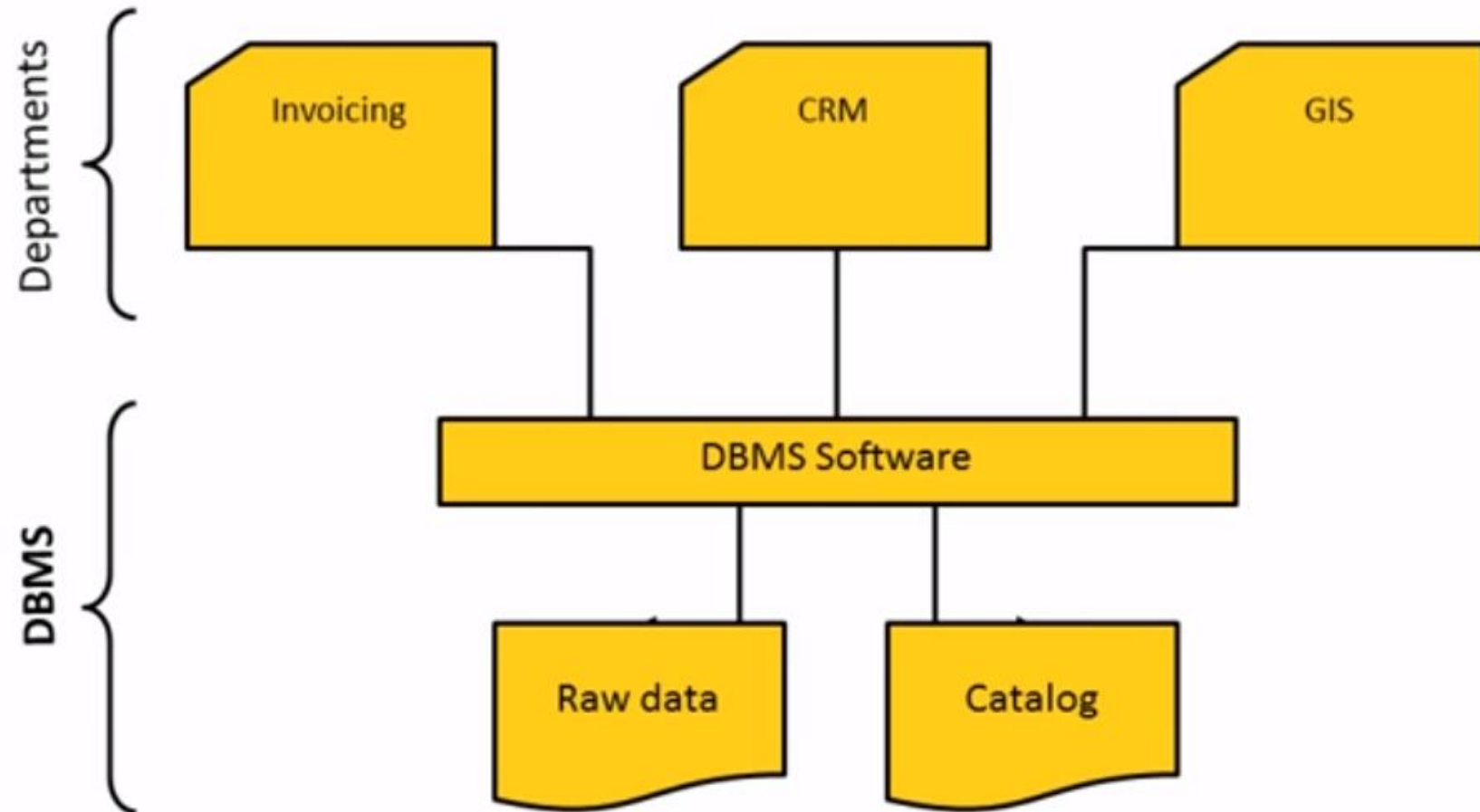   --- Uncontrolled concurrent accesses can lead to inconsistencies

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   **Database systems offer solutions
   to all the above problems**

Solution

Database Management System (DBMS)

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It is a **collection of interrelated data & a set of programs** to access those data.

 The collection of data, **usually referred to as the database**, contains information relevant to an enterprise.

 Primary Goal of DBMS: provide a way to store & retrieve database information that is both convenient & efficient.

Database Management System (DBMS)

The DBMS is a general-purpose software system that facilitates the processes of defining, constructing, manipulating, and sharing databases among various users and applications.

SYSTEM
PROTECTION

- H/W S/W
corruption

- Failure

SECURITY
PROTECTION

- Unauthorized
access

-Malicious access