

Subject Intro

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- Metadata
- Databases and DBMS
- data: raw stored facts
- information: data presented in context; summarise; processed to increase user knowledge

Metadata

- data about data to provide consistency and meaning
- structures + rules + constraints
- *data dictionary*: defines data description, type, size

Databases and DBMS

- *database*: large, integrated, structure collection of data
 - e.g. university comprises:
 - * entities: e.g. courses, subjects, professors (*rectangles* in DB schema)
 - * relationships: e.g. enrollment, teaching (*arrows* in DB schema)
- *database management system (DBMS)*: software system to store, manage, facilitate database access
- *without a database* you use file-based system
 - program-data dependence
 - * if file structure changes, program does too
 - data duplication
 - limited data sharing: data tied to application
 - slow development with program implementing low-level data management
 - increased program maintenance: ~80% of dev time for file based systems is tied up in maintenance
- *with a database*
 - manage data in structure way
 - relational model dominant

- * rows and columns form relations

Enrolled			Students		
sid	cid	grade	sid	name	login
53666	Carnatic101	5	53666	Jones	jones@cs
53666	Reggae203	5.5	53688	Smith	smith@eecs
53650	Topology112	6	53650	Smith	smith@mat
53666	History105	5			

- * keys, foreign keys link relations
- advantages