1. We have assumed that employees do not take any holidays from work. Therefore all employees do work each day.
2. Promotional discounts on travel cards are offered only for a particular day and not for an entire week or month. Therefore if promotions are offered for three simultaneous dates, there will be three entities in the promotional entity type.
3. Each guest belongs to only one A-star passenger. Two or more A-star passengers cannot have the same guest.
4. A ticket is valid for the entire day and the passenger can use the ticket for travel at any time of the day.
5. All A-Star passengers are A-class passengers
6. All bus stops have unique bus stop numbers which can be used to identify them.
7. Buses parked in the terminal can be parked for specific durations of time.

Chapter 1

data collection of known facts

represents miniworld or universe of disclosure (uod)

dbms - defining, constructing, manipulating and sharing of data

requirement specification and analysis - documented to create conceptual design

further translated to logical design

last stage physical design

characteristcis of database system

self describing nature, meta data

insulation btwn programs and data, data abstraction

support of multiple views of data

sharing of data and multiuser transaction processing, concurrency control, online trans processing (oltp)

database administrators

database designers

end users

advantages of dbms approach

controlled redundancy

restricting unauthorized access

providing persistent storage for prgm objects

storage structures and search techniques for query processing

providing backup and recovery

multiple user interfaces

complex relationships

enforcing integrity constraints

more implications

potential for enforcing standards

reduced application development time

flexibility

availability of up to date information

database system - dbms + data(also meta-data)

spatial dbms

bio informatics

er model - high level conceptual data model

entity - real world object

attribute - property of entity

recursive relationship

degree of relationship

relational data model - implementation data model

integrity constraints - constraints on attribute

referential integrity constraints

Chapter 2

data abstraction

data model - collection of concepts that describe structure of database and provide data abstraction, data types, relationships, constraints etc

data model - high level/conceptual and low level/physical and representational/implementation/logical data model

entity, attributes and relationship

er model - high level conceptual data model

relational data model (record based data model) - implementation model

database schema, schema diagram and schema construct

database state or snapshot

meta data - description of schema constructs

schema evolution

three schema architecture

internal level has internal schema

conceptual level has conceptual schema

external level has external schema

mapping between schema

data independence

logical data independence

physical data independence

data definition language ddl

storage definition language sdl

data manipulation languages dml

view definition language vdl

sql relational db lang - combination of ddl, vdl and dml

Relational Model

Each row has id, row called tuple, tuples are unique

attribute values are only simple values

high level/non-procedural dml, set oriented, declarative

low level/procedural dml, record oriented