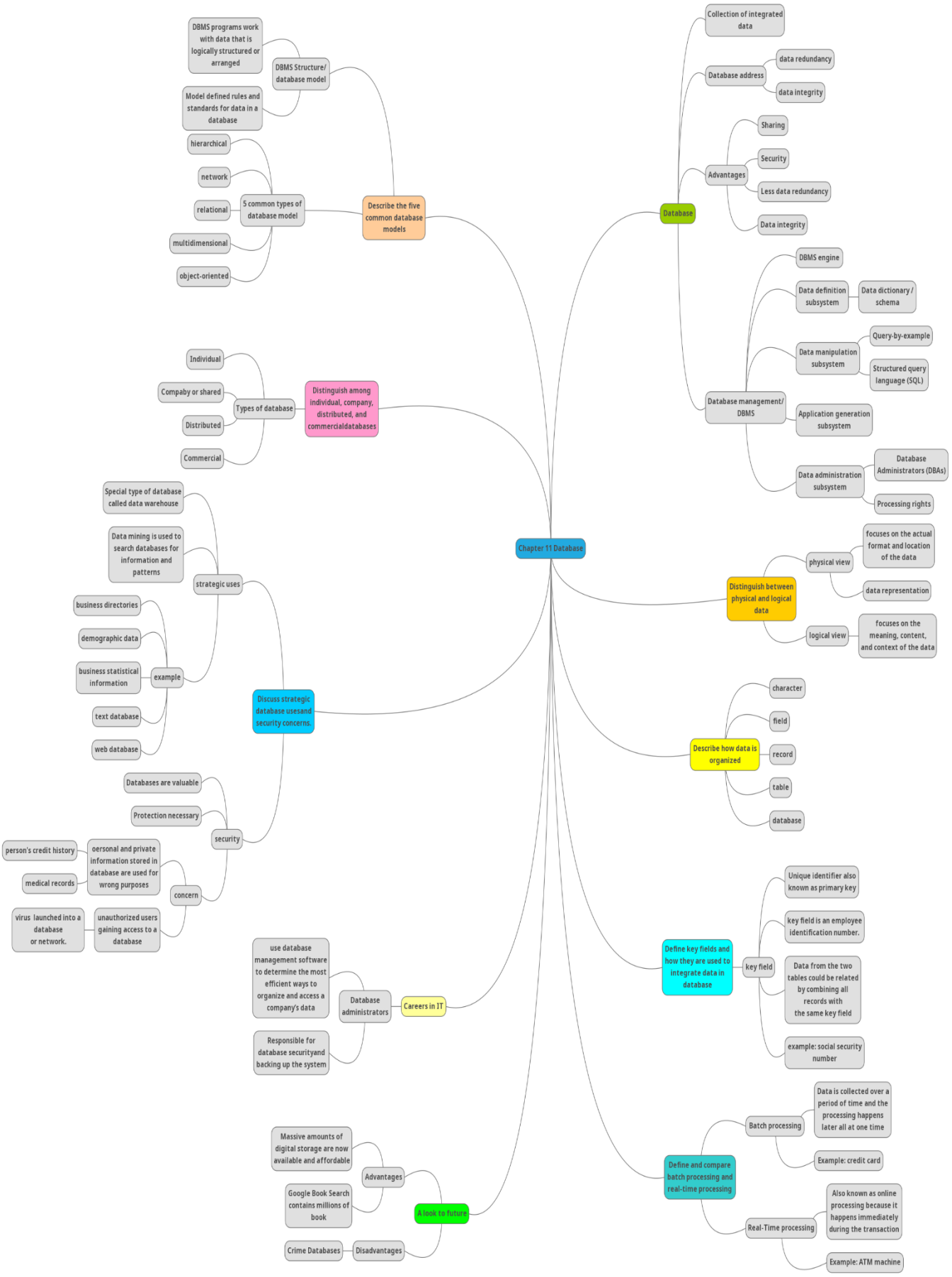
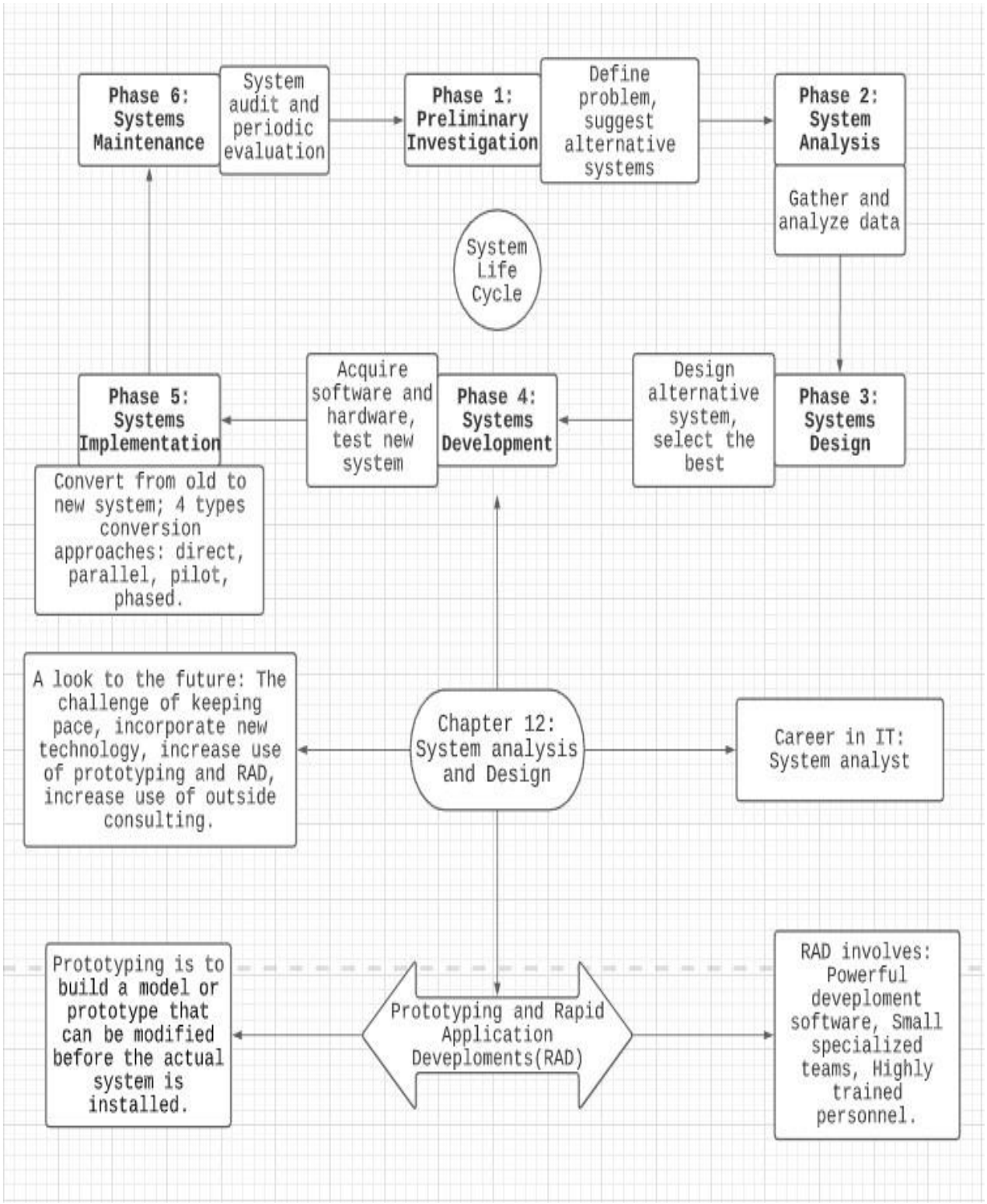
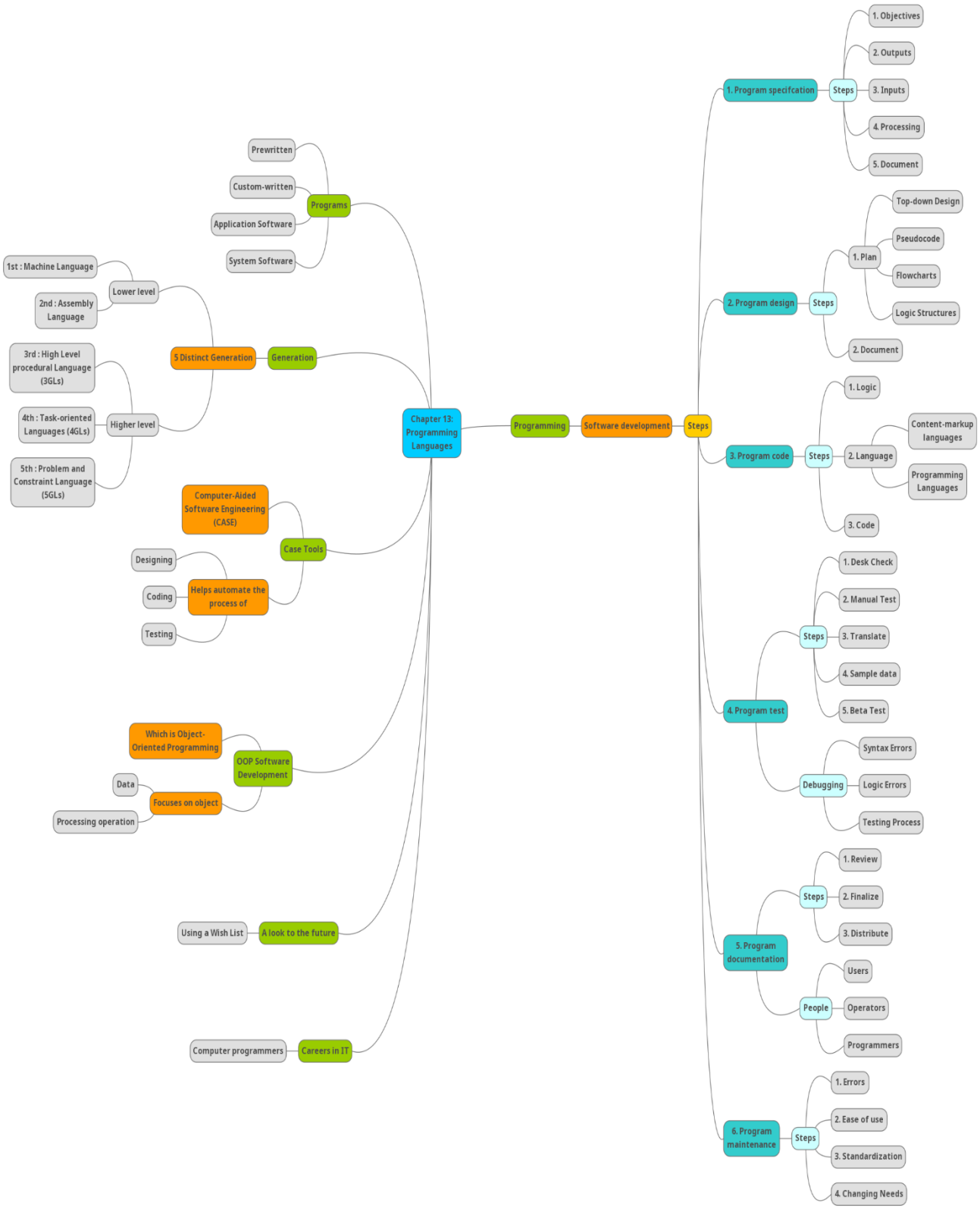

Chapter 11 Database
Database
Collection of integrated data
Database address
data redundancy
data integrity
Advantages
Sharing
Security
Less data redundancy
Data integrity
Database management/ DBMS
DBMS engine
Data definition subsystem
Data dictionary / schema
Data manipulation subsystem
Query-by-example
Structured query language (SQL)
Application generation subsystem
Data administration subsystem
Database Administrators (DBAs)
Processing rights
Distinguish between physical and logical data
physical view
focuses on the actual format and location of the data
data representation
logical view
focuses on the meaning, content, and context of the data
Describe how data is organized
character
field
record
table
database
Define key fields and how they are used to integrate data in database
key field
Unique identifier also known as primary key
key field is an employee identification number.
Data from the two tables could be related by combining all records with the same key field
example: social security number
Define and compare batch processing and real-time processing
Batch processing
Data is collected over a period of time and the processing happens later all at one time
Example: credit card
Real-Time processing
Also known as online processing because it happens immediately during the transaction
Example: ATM machine
Careers in IT
Database administrators
use database management software to determine the most efficient ways to organize and access a company's data
Responsible for database securityand backing up the system
A look to future
Advantages
Massive amounts of digital storage are now available and affordable
Google Book Search contains millions of book
Disadvantages
Crime Databases
Describe the five common database models
DBMS Structure/ database model
DBMS programs work with data that is logically structured or arranged
Model defined rules and standards for data in a database
5 common types of database model
hierarchical
network
relational
multidimensional
object-oriented
Distinguish among individual, company, distributed, and commercialdatabases
Types of database
Individual
Compaby or shared
Distributed
Commercial
Discuss strategic database usesand security concerns.
strategic uses
Special type of database called data warehouse
Data mining is used to search databases for information and patterns
example
business directories
demographic data
business statistical information
text database
web database
security
Databases are valuable
Protection necessary
concern
oersonal and private information stored in database are used for wrong purposes
person's credit history
medical records
unauthorized users gaining access to a database
virus launched into a database or network.


Phase 6: Systems Maintenance
System audit and periodic evaluation
Phase 1: Preliminary Investigation
Define problem, suggest alternative systems
Phase 2: System Analysis
Gather and analyze data
System Life Cycle
Phase 5: Systems Implementation
Acquire software and hardware, test new system
Phase 4: Systems Development
Design alternative system, select the best
Phase 3: Systems Design
Convert from old to new system; 4 types conversion approaches: direct, parallel, pilot, phased.
A look to the future: The challenge of keeping pace, incorporate new technology, increase use of prototyping and RAD, increase use of outside consulting.
Chapter 12: System analysis and Design
Career in IT: System analyst
Prototyping is to build a model or prototype that can be modified before the actual system is installed.
Prototyping and Rapid Application Develoments(RAD)
RAD involves: Powerful develoment software, Small specialized teams, Highly trained personnel.


Chapter 13: Programming Languages
Programs
Prewritten
Custom-written
Application Software
System Software
Generation
5 Distinct Generation
Lower level
1st : Machine Language
2nd : Assembly Language
Higher level
3rd : High Level procedural Language (3GLs)
4th : Task-oriented Languages (4GLs)
5th : Problem and Constraint Language (5GLs)
Case Tools
Computer-Aided Software Engineering (CASE)
Helps automate the process of
Designing
Coding
Testing
OOP Software Development
Which is Object-Oriented Programming
Focuses on object
Data
Processing operation
A look to the future
Using a Wish List
Careers in IT
Computer programmers
Programming
Software development
Steps
1. Program specifcation
Steps
1. Objectives
2. Outputs
3. Inputs
4. Processing
5. Document
2. Program design
Steps
1. Plan
Top-down Design
Pseudocode
Flowcharts
Logic Structures
2. Document
3. Program code
Steps
1. Logic
2. Language
Content-markup languages
Programming Languages
3. Code
4. Program test
Steps
1. Desk Check
2. Manual Test
3. Translate
4. Sample data
5. Beta Test
Debugging
Syntax Errors
Logic Errors
Testing Process
5. Program documentation
Steps
1. Review
2. Finalize
3. Distribute
People
Users
Operators
Programmers
6. Program maintenance
Steps
1. Errors
2. Ease of use
3. Standardization
4. Changing Needs