Stage 3 Cheat Sheet - Python OOP, SQL, OS, Web

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1. Python OOP
- Class: Blueprint for creating objects
- Object: Instance of a class
- Method: Function defined inside a class
- Encapsulation: Hiding internal details
- Inheritance: Child class derives from parent
- Polymorphism: Same method behaves differently
- Abstraction: Hiding complexity, showing essential features
- Composition: Class uses features of another class without inheriting

One-word answers quiz:
1. Hiding internal details -> Encapsulation
2. Function inside a class -> Method
3. Using another class without inheriting -> Composition
4. Child class derives from parent -> Inheritance
5. Ability to take many forms -> Polymorphism

2. SQL
- SELECT: Retrieve data
- INSERT: Add new rows
- UPDATE: Modify existing data
- DELETE: Remove rows
- DROP: Remove a table
- WHERE: Filter rows
- HAVING: Filter groups
- PRIMARY KEY: Uniquely identifies row
- FOREIGN KEY: Links tables
- NOT NULL: Column must have value
- JOIN: Combine rows from multiple tables

One-word answers quiz:
1. Clause to filter rows -> WHERE
2. Add new rows -> INSERT
3. Modify rows -> UPDATE
4. Remove table -> DROP
5. Unique identifier -> PRIMARY KEY
6. Link tables -> FOREIGN KEY
7. Combine tables -> JOIN
8. Prevent NULL -> NOT NULL

3. Operating System (OS)

- Process: Sequence of instructions executed by CPU

- Thread: Smallest execution unit within a process

- Scheduling: CPU allocation for processes

  - FCFS: First Come First Serve

  - Round Robin: Time-sharing scheduling

- Deadlock: Processes waiting forever

- Mutex: Prevent simultaneous access to shared resources

One-word answers quiz:

1. Smallest unit -> Thread

2. Prevent simultaneous access -> Mutex

3. FCFS -> FCFS

4. Waiting forever -> Deadlock

4. Web

- HTML: Structure of webpages

- CSS: Styling webpages

- JavaScript: Adds interactivity

- HTTP: Protocol for web pages

- HTTPS: Secure HTTP

- img tag: Display image

- a tag: Hyperlinks

One-word answers quiz:

1. Language for structure -> HTML

2. Styling language -> CSS

3. Interactivity -> JavaScript

4. Secure protocol -> HTTPS

5. Image tag -> img

5. Stage 3 One-Word Quiz - Final

1. Hiding internal details -> Encapsulation

2. Function inside class -> Method

3. Using another class without inheriting -> Composition

4. Combine rows from tables -> Join

5. Modify existing data -> Update

6. Column must have value -> NotNull

7. Smallest CPU execution unit -> Thread

8. Prevent shared resource access -> Mutex

9. HTML tag for image -> img

10. Adds interactivity -> JavaScript