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file based system emulation.py - C:/Users/beast/AppData/Local/Programs/Python/Python312/file based system emulation.py (3.12.6)
File Edit Format Run Options Window Help
# File-based system simulation
def add_student():
    with open("students.txt", "a") as f:
        sid = input("Enter Student ID: ")
        name = input("Enter Student Name: ")
        course = input("Enter Course: ")
        f.write(f"{sid},{name},{course}\n")
    print("Record added successfully.")

def view_students():
    with open("students.txt", "r") as f:
        print("ID | Name | Course")
        for line in f:
            print(line.strip())

def search_student():
    sid = input("Enter Student ID to search: ")
    with open("students.txt", "r") as f:
        found = False
        for line in f:
            data = line.strip().split(",")
            if data[0] == sid:
                print("Found:", data)
                found = True
                break
        if not found:
            print("Student not found.")
add_student();
add_student();
add_student();
view_students();
search_student();

```

Output→

```

Python 3.12.6 (tags/v3.12.6:a4a2d2b, Sep  6 2024, 20:11:23) [MSC v.1940 64 bit
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/beast/AppData/Local/Programs/Python/Python312/file based sys
tem emulation.py
Enter Student ID: 101
Enter Student Name: Ajit
Enter Course: Computer Science
Record added successfully.
Enter Student ID: 102
Enter Student Name: Akash
Enter Course: Business
Record added successfully.
Enter Student ID: 103
Enter Student Name: Naksh
Enter Course: Medical
Record added successfully.
ID | Name | Course
101,Ajit,Computer Science
102,Akash,Business
103,Naksh,Medical
Enter Student ID to search: 103
Found: ['103', 'Naksh', 'Medical']
>>> |

```

◆ **Advantages of File System**

- Simple to implement (as shown in your Python program).
- Easy to store and retrieve sequential data.
- Suitable for small applications.
- No need for a database server (lightweight).
- Direct file operations (append, read, search).

ER Diagram Based Implementation in ERDPLUS→

