In [6]:
```
# ------------------------------
# Library Management System
# Python Mini Project
# ------------------------------

# List to store book records (20 books)
books = [
    {"ID": 1, "Title": "Python Basics", "Author": "John Doe", "Category": "PROGRAMMING"},
    {"ID": 2, "Title": "Data Structures", "Author": "Mark Allen", "Category": "COMPUTER SCIENCE"},
    {"ID": 3, "Title": "Machine Learning", "Author": "Andrew Ng", "Category": "AI"},
    {"ID": 4, "Title": "Deep Learning", "Author": "Ian Goodfellow", "Category": "AI"},
    {"ID": 5, "Title": "Operating Systems", "Author": "Silberschatz", "Category": "COMPUTER SCIENCE"},
    {"ID": 6, "Title": "Database Systems", "Author": "Elmasri", "Category": "DATABASE"},
    {"ID": 7, "Title": "Computer Networks", "Author": "Tanenbaum", "Category": "NETWORKING"},
    {"ID": 8, "Title": "Java Programming", "Author": "James Gosling", "Category": "PROGRAMMING"},
    {"ID": 9, "Title": "C Programming", "Author": "Dennis Ritchie", "Category": "PROGRAMMING"},
    {"ID": 10, "Title": "Web Development", "Author": "Tim Berners-Lee", "Category": "WEB"},
    {"ID": 11, "Title": "Cyber Security", "Author": "Bruce Schneier", "Category": "SECURITY"},
    {"ID": 12, "Title": "Cloud Computing", "Author": "Rajkumar Buyya", "Category": "CLOUD"},
    {"ID": 13, "Title": "Software Engineering", "Author": "Pressman", "Category": "ENGINEERING"},
    {"ID": 14, "Title": "Artificial Intelligence", "Author": "Stuart Russell", "Category": "AI"},
    {"ID": 15, "Title": "Linux Administration", "Author": "Christopher Negus", "Category": "OPERATING SYSTEM"},
    {"ID": 16, "Title": "Computer Graphics", "Author": "Hearn", "Category": "GRAPHICS"},
    {"ID": 17, "Title": "Data Science", "Author": "Joel Grus", "Category": "DATA"},
    {"ID": 18, "Title": "Algorithms", "Author": "CLRS", "Category": "COMPUTER SCIENCE"},
    {"ID": 19, "Title": "Mobile App Development", "Author": "Paul Deitel", "Category": "MOBILE"},
    {"ID": 20, "Title": "Ethical Hacking", "Author": "Kevin Mitnick", "Category": "SECURITY"}
]

# Function to add a book
def add_book():
    try:
        book_id = int(input("Enter Book ID: "))
        title = input("Enter Book Title: ").strip().title()
        author = input("Enter Author Name: ").strip().title()
        category = input("Enter Book Category: ").strip().upper()

        book = {
            "ID": book_id,
```

```
            "Title": title,
            "Author": author,
            "Category": category
        }

        books.append(book)
        print("Book added successfully!")

    except ValueError:
        print("Invalid input! Book ID must be a number.")

# Function to view all books
def view_books():
    if len(books) == 0:
        print("No books available in the library.")
    else:
        print("\n--- Library Book Records ---")
        for book in books:
            print("ID:", book.get("ID"))
            print("Title:", book.get("Title"))
            print("Author:", book.get("Author"))
            print("Category:", book.get("Category"))
            print("--------------------------")

# Function to search books by category
def search_book():
    search_category = input("Enter category to search: ").strip().upper()
    found = False

    for book in books:
        if book.get("Category") == search_category:
            print(book)
            found = True

    if not found:
        print("No books found in this category.")

# Function to save book records to file
def save_to_file():
    with open("library_books.txt", "w") as file:
        for book in books:
```

```
            file.write(str(book) + "\n")
    print("Library records saved to file.")


while True:
    print("\n===== Library Management Menu =====")
    print("1. Add Book")

    print("2. View Books")
    print("3. Search Book by Category")
    print("4. Save & Exit")

    choice = input("Enter your choice (1-4): ").strip()

    if choice == "1":
            add_book()
    elif choice == "2":
            view_books()
    elif choice == "3":
            search_book()
    elif choice == "4":
        save_to_file()
        print("Exiting program. Thank you!")
        break
    else:
        print("Invalid choice. Please select 1 to 4.")
```

```
===== Library Management Menu =====
1. Add Book
2. View Books
3. Search Book by Category
4. Save & Exit
```

```
--- Library Book Records ---
ID: 1
Title: Python Basics
Author: John Doe
Category: PROGRAMMING
--------------------------
ID: 2
Title: Data Structures
Author: Mark Allen
Category: COMPUTER SCIENCE
--------------------------
ID: 3
Title: Machine Learning
Author: Andrew Ng
Category: AI
--------------------------
ID: 4
Title: Deep Learning
Author: Ian Goodfellow
Category: AI
--------------------------
ID: 5
Title: Operating Systems
Author: Silberschatz
Category: COMPUTER SCIENCE
--------------------------
ID: 6
Title: Database Systems
Author: Elmasri
Category: DATABASE
--------------------------
ID: 7
Title: Computer Networks
Author: Tanenbaum
Category: NETWORKING
--------------------------
ID: 8
Title: Java Programming
Author: James Gosling
Category: PROGRAMMING
--------------------------
```

```
ID: 9
Title: C Programming
Author: Dennis Ritchie
Category: PROGRAMMING
---------------------------
ID: 10
Title: Web Development
Author: Tim Berners-Lee
Category: WEB
---------------------------
ID: 11
Title: Cyber Security
Author: Bruce Schneier
Category: SECURITY
---------------------------
ID: 12
Title: Cloud Computing
Author: Rajkumar Buyya
Category: CLOUD
---------------------------
ID: 13
Title: Software Engineering
Author: Pressman
Category: ENGINEERING
---------------------------
ID: 14
Title: Artificial Intelligence
Author: Stuart Russell
Category: AI
---------------------------
ID: 15
Title: Linux Administration
Author: Christopher Negus
Category: OPERATING SYSTEM
---------------------------
ID: 16
Title: Computer Graphics
Author: Hearn
Category: GRAPHICS
---------------------------
ID: 17
```

```
Title: Data Science
Author: Joel Grus
Category: DATA
---------------------------
ID: 18
Title: Algorithms
Author: CLRS
Category: COMPUTER SCIENCE
---------------------------
ID: 19
Title: Mobile App Development
Author: Paul Deitel
Category: MOBILE
---------------------------
ID: 20
Title: Ethical Hacking
Author: Kevin Mitnick
Category: SECURITY
---------------------------

===== Library Management Menu =====
1. Add Book
2. View Books
3. Search Book by Category
4. Save & Exit
{'ID': 11, 'Title': 'Cyber Security', 'Author': 'Bruce Schneier', 'Category': 'SECURITY'}
{'ID': 20, 'Title': 'Ethical Hacking', 'Author': 'Kevin Mitnick', 'Category': 'SECURITY'}

===== Library Management Menu =====
1. Add Book
2. View Books
3. Search Book by Category
4. Save & Exit
{'ID': 10, 'Title': 'Web Development', 'Author': 'Tim Berners-Lee', 'Category': 'WEB'}

===== Library Management Menu =====
1. Add Book
2. View Books
3. Search Book by Category
4. Save & Exit
```

```
Library records saved to file.
Exiting program. Thank you!
```

In [ ]:

In [ ]: