Student Record Management System

ACADION ERP

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Synopsis:

Overview:
Acadion ERP is a Python-based Student Record Management System. Its intuitive menu-driven interface allows educational institutions to maintain student data efficiently. The program integrates several core functionalities to streamline tasks such as adding, deleting, modifying, searching, sorting, and displaying student details in a structured format.

Introduction:
In academic institutions, maintaining student records is a critical task. Manual record-keeping is prone to errors and inefficiencies. This project, Acadion ERP, is designed to automate the process of managing student records, thereby reducing errors and enhancing productivity.

The system uses Python as the programming language and incorporates structured data management using dictionaries to store and retrieve records. It features a user-friendly interface with menu-driven options for smooth navigation.

Features:
1. Add Student Details: Add a new student's details, including name, class, and a unique auto-generated admission number.
2. Delete Student Details: Remove records of students by name.
3. Modify Student Details: Update existing student information.
4. Search Student Details: Locate a student's record using their name.
5. Sort Student Records: Organize records based on admission numbers.
6. View All Records: Display all student records in a tabular format.

Implementation:

The project employs the following Python programming features and built-in functions:

- Data Storage: A dictionary-in-dictionary approach is used to store student records, where each student's admission number serves as the key, and the value is another dictionary containing their details.
- Random Module: For generating unique admission numbers.
- Built-in Functions:
  - str.lower()
  - dict.keys():
  - dict.items()
  - del
  - .sort()

Source code

```python
import random as r

print("------Student Record Management System------")
banner = """
```

```python
"""
print(banner)
print("┌────────────────────────────────────┐")
print("│            Welcome to Acadion ERP            │")
print("└────────────────────────────────────┘")


def display_menu():
    print("Menu:")
    print("┌────────────────────────────────────┐")
    print("│ [1] Add Student Details                 │")
    print("│ [2] Delete Student Details              │")
    print("│ [3] Modify Student Details              │")
    print("│ [4] Search Student Details              │")
    print("│ [5] Sort Student Records                │")
    print("│ [6] View all Records                    │")
    print("│ [0] Exit                                │")
    print("└────────────────────────────────────┘")


def generateAdmission_num():
    return r.randint(100000, 999999)


def addStudent(record):
    print("Add records of student")
    name = input("Enter name : ")
    std = input("Enter class : ")
```

```python
        add_num = generateAdmission_num()
        record[add_num] = {"Admission Number": add_num, "Name": name, "Class": std}
        print(f"Student:{name}, has been added to the records, with admission
        no:{add_num}\n")



def removeStudent(record):
    element = input("Enter the name of student to delete: ")
    for admission_number, student in record.items():
        if element.lower() == student["Name"].lower():
            del record[admission_number]
            print(f"{element} has been deleted from the list.\n")
            break
    else:
        print(f"{element} is not in the list.\n")



def searchStudent(record):
    element = input("Enter the name of student to search: ")
    for admission_number, student in record.items():
        if element.lower() == student["Name"].lower():
            print(student, "\n")
            break
    else:
        print("Student not found\n")



def modifyStudent(record):
    element = input("Enter the name of student to modify: ")
    for admission_number, student in record.items():
        if element.lower() == student["Name"].lower():
            name = input("Enter new name : ")
            std = input("Enter new class : ")
            student["Name"] = name
            student["Class"] = std
            print("The Record has been modified.\n")
            break
    else:
        print("Student not found\n")
```

```python
def sortStudent():
    global record
    l = list(record.keys())
    l.sort()
    record = {i: record[i] for i in l}
    print("Student Record has been sorted.")


def showStudent(record):
    max_name_length = max(len(record[i]['Name']) for i in record)
    max_class_length = max(len(record[i]['Class']) for i in record)

    print("Student Records:")

    space = (21 + (max_name_length + 4 if max_name_length > 4 else 8) +
             (max_class_length + 4 if max_class_length > 5 else 9))
    spacen = max_name_length + 4 if max_name_length > 4 else 8
    spacec = max_class_length + 4 if max_class_length > 5 else 9

    print("┌" + "=" * space + "┐")
    print(f"│{'Admission Number':^19}│{'Name':^{spacen}}│{'Class':^{spacec}}│")
    print("├" + "=" * space + "┤")

    for i in record.keys():
        admission_number = record[i]['Admission Number']
        name = record[i]['Name']
        student_class = record[i]['Class']

print(f"│{admission_number:^19}│{name:^{spacen}}│{student_class:^{spacec}}│")

        if i == list(record.keys())[len(list(record.keys())) - 1]:
            print("└" + "=" * space + "┘")
        else:
            print("├" + "─" * space + "┤")
    print("\n")


record = dict()
```

```python
while True:
    display_menu()
    choice = input("Enter your choice: ")
    print("-" * 60)
    print("\n")
    if choice == '1':
        addStudent(record)
        print("-" * 60)
    elif choice == '2':
        removeStudent(record)
        print("-" * 60)
    elif choice == '3':
        modifyStudent(record)
        print("-" * 60)
    elif choice == '4':
        searchStudent(record)
        print("-" * 60)
    elif choice == '5':
        sortStudent()
        print("-" * 60)
    elif choice == '6':
        showStudent(record)
        print("-" * 60)
    elif choice == '0':
        print("Exiting the program.")
        break
    else:
        print("Invalid choice. Please try again.\n\n")
```

Output

```
------Student Record Management System------
```
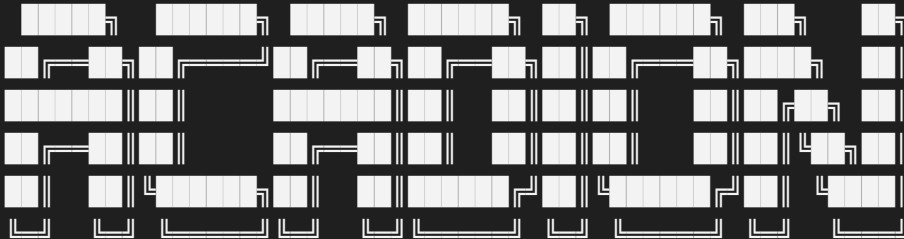


```
╔══════════════════════════════════════════╗
║            Welcome to Acadion ERP           ║
╚══════════════════════════════════════════╝

Menu:

╔══════════════════════════════════════════╗
║ [1] Add Student Details                     ║
║ [2] Delete Student Details                  ║
║ [3] Modify Student Details                  ║
║ [4] Search Student Details                  ║
║ [5] Sort Student Records                    ║
║ [6] View all Records                        ║
║ [0] Exit                                    ║
╚══════════════════════════════════════════╝

Enter your choice: 1
------------------------------------------------------------


Add records of student
Enter name : Sachin
Enter class : 10
Student: Sachin, has been added to the records, with admission no: 590595


------------------------------------------------------------
```

```
Menu:
╔═══════════════════════════════════════════╗
║ [1] Add Student Details                   ║
║ [2] Delete Student Details                ║
║ [3] Modify Student Details                ║
║ [4] Search Student Details                ║
║ [5] Sort Student Records                  ║
║ [6] View all Records                      ║
║ [0] Exit                                  ║
╚═══════════════════════════════════════════╝

Enter your choice: 6
------------------------------------------------------------


Student Records:
╔═══════════════════════════════════════════╗
│ Admission Number  │      Name      │ Class │
╠═══════════════════════════════════════════╣
│      125478       │     Ashish     │   8   │
├───────────────────────────────────────────┤
│      458753       │  Krishna Singh │   2   │
├───────────────────────────────────────────┤
│      852456       │     Preeti     │   5   │
├───────────────────────────────────────────┤
│      625479       │     Aadhya     │  12   │
├───────────────────────────────────────────┤
│      590595       │     Sachin     │  10   │
╚═══════════════════════════════════════════╝



------------------------------------------------------------
```

```
Menu:
╔══════════════════════════════════════════╗
║ [1] Add Student Details                  ║
║ [2] Delete Student Details               ║
║ [3] Modify Student Details               ║
║ [4] Search Student Details               ║
║ [5] Sort Student Records                 ║
║ [6] View all Records                     ║
║ [0] Exit                                 ║
╚══════════════════════════════════════════╝
Enter your choice: 3
-------------------------------------------------------------


Enter the name of student to modify: Sachin
Enter new name : Sachin Singh
Enter new class : 11
The Record has been modified.


-------------------------------------------------------------
Menu:
╔══════════════════════════════════════════╗
║ [1] Add Student Details                  ║
║ [2] Delete Student Details               ║
║ [3] Modify Student Details               ║
║ [4] Search Student Details               ║
║ [5] Sort Student Records                 ║
║ [6] View all Records                     ║
║ [0] Exit                                 ║
╚══════════════════════════════════════════╝
Enter your choice: 4
-------------------------------------------------------------


Enter the name of student to search: Preeti
{'Admission Number': 852456, 'Name': 'Preeti', 'Class': '5'}


-------------------------------------------------------------
```

```
Menu:
╔════════════════════════════════════╗
║ [1] Add Student Details            ║
║ [2] Delete Student Details         ║
║ [3] Modify Student Details         ║
║ [4] Search Student Details         ║
║ [5] Sort Student Records           ║
║ [6] View all Records               ║
║ [0] Exit                           ║
╚════════════════════════════════════╝

Enter your choice: 5
-----------------------------------------------------------
Student Record has been sorted.
-----------------------------------------------------------
Menu:
╔════════════════════════════════════╗
║ [1] Add Student Details            ║
║ [2] Delete Student Details         ║
║ [3] Modify Student Details         ║
║ [4] Search Student Details         ║
║ [5] Sort Student Records           ║
║ [6] View all Records               ║
║ [0] Exit                           ║
╚════════════════════════════════════╝

Enter your choice: 6
-----------------------------------------------------------
Student Records:
```

Admission Number	Name	Class
125478	Ashish	8
458753	Krishna Singh	2
590595	Sachin Singh	11
625479	Aadhya	12
852456	Preeti	5

```
------------------------------------------------------------
Menu:

╔═══════════════════════════════════════════════════╗
║ [1] Add Student Details                           ║
║ [2] Delete Student Details                        ║
║ [3] Modify Student Details                        ║
║ [4] Search Student Details                        ║
║ [5] Sort Student Records                          ║
║ [6] View all Records                              ║
║ [0] Exit                                          ║
╚═══════════════════════════════════════════════════╝

Enter your choice: 0
------------------------------------------------------------
Exiting the program.
```