



BRIGHT ACADEMY

SECTION-D2, Project Group 5

README Document

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INTRODUCTION:

The project goal is to design an application named Bright Academy. It is an application programming interface based on Python to allow a user to search and compare colleges. To build this interface, we are using different components and modules of Python. Our application interface provides three main functionalities:

- Search College based on User Profile
- Search College by College Name
- Compare Colleges

INSTALLATION REQUIREMENTS:

The user needs to install the below-listed items to execute the application successfully.

1. For installing python package dependencies, run the following command:

```
pip install -r requirements.txt
```

2. The application uses the Selenium driver for data scraping. Please download the respective chrome driver based on the system you are executing the code from the below-mentioned URL:
<https://sites.google.com/chromium.org/driver/downloads?authuser=0>
For now, we are providing chrome driver only for Windows OS.
3. To execute the application, run the following line on Command Prompt:
Python main_app.py
4. Please refer Demo section to see the detailed execution of the application.

DESIGN OF THE PROJECT

For our project, we are sourcing data from the below listed URLs:

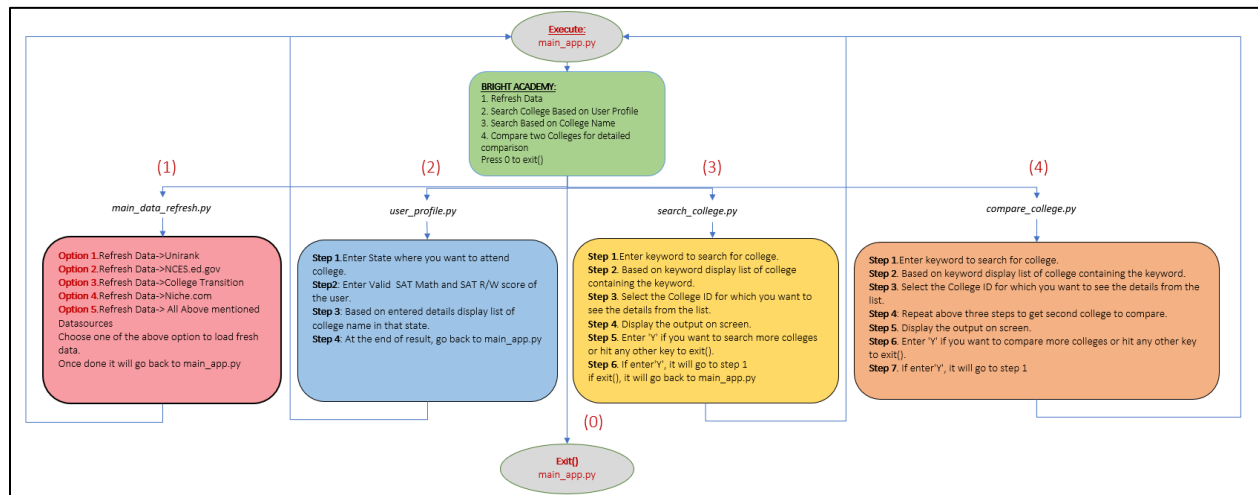
<https://www.collegetransitions.com/dataverse/>

<https://nces.ed.gov/collegenavigator/>

<https://www.4icu.org/us/>

<https://www.niche.com/colleges/search/best-colleges>

APPLICATION FLOW DIAGRAM:



Scripts and Their Functionalities:

- **main_app.py:** This is the main script to execute the entire application of Bright Academy. It provides four options to the user.
 1. REFRESH DATA
 2. SEARCH COLLEGE BASED ON USER PROFILE
 3. SEARCH BASED ON COLLEGE NAME
 4. COMPARE TWO COLLEGES FOR DETAILED COMPARISON
 5. Press 0 to exit ()

1. REFRESH DATA:

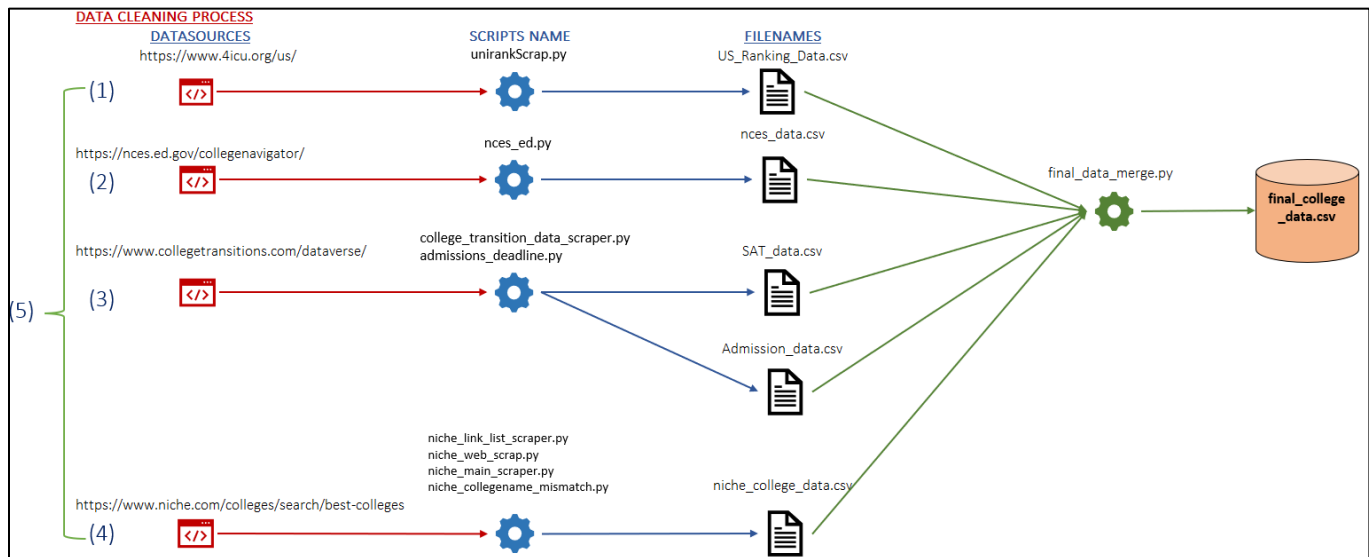
This module is to get the latest data from all the data sources. The main script behind this module is `main_data_refresh.py`.

- **main_data_refresh.py:** The script will let the user decide the data to refresh. The script will prompt the user with the following options:
 1. Refresh Data for UniRank
 2. Refresh Data for NCES.ed.gov
 3. Refresh Data for College Transition
 4. Refresh Data for Niche.com
 5. Refresh Data from all sources

Given below is the Data Flow Diagram describing the Data Scraping and the Data Cleaning process along with scripts and their functionalities behind the web scraping and cleaning process.

DATA SCRAPING & CLEANING FLOW DIAGRAM:

We are using Web Scraping to extract the data from these URLs. Below mentioned is the logical design of the data extraction and cleaning process.



The final output file “final_college_data.csv” contains below mentioned columns:

1. **Rank:** Extracted from URL (<https://www.4icu.org/us/>). Data type is int.
2. **College Name:** Extracted from URL(<https://www.4icu.org/us/>). Data type is string.
3. **Location:** Extracted from URL(<https://www.4icu.org/us/>). Data type is string. This tells the city of the college.
4. **NCES_id:** Extracted from URL(<https://nces.ed.gov/collegenavigator/>). This is a random integer associated with NCES ed data.
5. **State:** Extracted from URL(<https://nces.ed.gov/collegenavigator/>). Data type is string. State of the college.
6. **Address:** Extracted from URL(<https://nces.ed.gov/collegenavigator/>). Data type is string. Address of the college.
7. **Phone Number:** Extracted from URL(<https://nces.ed.gov/collegenavigator/>). Data type is string. Contact number of the college.
8. **website:** Extracted from URL(<https://nces.ed.gov/collegenavigator/>). Data type is string. College URL to see more details.
9. **type:** Extracted from URL(<https://nces.ed.gov/collegenavigator/>). Data type is string. This tells type of the college whether it is Private/Public, Profit/Non-Profit.
10. **awards offered:** Extracted from URL(<https://nces.ed.gov/collegenavigator/>). Data type is string
11. **campus_housing:** Extracted from URL(<https://nces.ed.gov/collegenavigator/>). Data type is string.
12. **student_population:** Extracted from URL(<https://nces.ed.gov/collegenavigator/>). Data type is string. It tells number of students.
13. **student_faculty_ratio:** Extracted from URL(<https://nces.ed.gov/collegenavigator/>). Data type is string.
14. **SAT Math:** Extracted from (<https://www.college.transitions.com/dataverse/>). Data type is string. SAT Math Score required for college admission.
15. **SAT R/W:** Extracted from (<https://www.college.transitions.com/dataverse/>). Data type is string.
SAT R/W score required for college admission.

16. **Admission Rate:** Extracted from (<https://www.collegetransitions.com/dataverse/>). Data type is string.
17. **Admissions Deadline:** Extracted from (<https://www.collegetransitions.com/dataverse/>). Data type is string.
18. **Overall Grade:** Extracted from (<https://www.niche.com/colleges/search/best-colleges>). Data type is string.
Overall rating of college experience by students.
19. **College Grade Card:** Extracted from (<https://www.niche.com/colleges/search/best-colleges>). Data type is string.
Rating for different aspects of college by their students.
20. **Popular Majors:** Extracted from (<https://www.niche.com/colleges/search/best-colleges>). Data type is string.
21. **College Description:** Extracted from (<https://www.niche.com/colleges/search/best-colleges>). Data type is string.
A brief introduction of college.
22. **Avg Salary:** Extracted from (<https://www.niche.com/colleges/search/best-colleges>). Data type is string.
Expected salary of a Graduate student from the specific college vs National.
23. **Employment Rate:** Extracted from (<https://www.niche.com/colleges/search/best-colleges>). Data type is string.
24. **College Highlights:** Extracted from (<https://www.niche.com/colleges/search/best-colleges>). Data type is string.
Key highlights for which field college is famous.

OUTPUT FILES AND THEIR DESCRIPTIONS:

1. **requirements.txt:** This file contains details of the python packages which are required to install before the execution of the application.
2. **US_Ranking_Data.csv:** This file contains output data for United States colleges from web scrap of 4icu.org/us.
3. **nces_data.csv:** This file contains NCES.ed.gov output data from web scrap of 4-year colleges in the United States.
4. **nces_ids.txt:** This file contains NCES.ed.gov College Navigator college 'ID' and college 'State' in order to build link necessary to scrap data in nced_ed.py.
5. **Admissions_deadline.csv:** This file contains admission deadlines for various colleges from collegetransitions.com.
6. **SAT_data.csv:** This file contains data related to the SAT scores and admission rates for various colleges from collegetransitions.com
7. **niche_url_list.txt:** This file contains all the college URLs for which we are scraping the data from Niche.com
8. **niche_error_log.txt:** This is an error log file, which might create during the execution of web scraping of Niche.com
9. **temp_niche_college_data.csv:** This file is a temporary file containing web scraping data from Niche.com.
10. **niche_college_data.csv:** This is the main file containing web scraping data after cleaning the name mismatch.
11. **final_college_data.csv:** This is the main csv file for the execution of the application. It contains data from all the data sources mentioned above.

***Please note we are providing all these files for the successful execution of the application. If the user wants to fetch fresh data, the user can execute module 1 from the Main Application Module.*

DATA CLEANING SCRIPTS AND THEIR FUNCTIONALITIES:

UniRank:

To scrap data from UniRank we have created one script:

- **unirankScrap.py:** This script contains a function called “scrap_uniRank()” which will scrap the uniRank data through the URL given in the function, create a DataFrame containing the data, and write the cleaned data into US_Ranking_Data.csv. The csv file contains two columns: ranking and college name. The CSV file will then be used to merge into the final data file.

NCED ED:

To scrap data from NCES.ed.gov we have created one script:

- **nces_ed.py:** This script contains a function called “get_nces_data()”. The function will scrap the nces.ed.gov website by taking in college ID’s (obtained from nces.ed.gov) as well as the college state from nces_ids.txt to build the URL for each college. The script then collects the applicable data fields: college name, college address, phone number, website, type, awards offered, campus housing, student population, and student faculty ratio. The script builds a list of lists of college data, removes the commas from all strings, and then creates a DataFrame. The DataFrame is then output to a CSV file (nces_data.csv). The CSV file will be used to merge into the final data file.

***Please note: The execution for scraping nces_edu will take an hour depending on the system you are executing.*

College Transition:

To scrap data from collegetransitions.com. We have created four scripts which are as follows:

- **college_transition_data_scraper.py:** This script is created to scrape data for various colleges related to the SAT Scores and the Admission Rates. It takes the web URL as input and extract the required college information. The data is then stored in a DataFrame where the required data cleaning is done. Finally, the cleaned DataFrame is used to create a CSV file (SAT_Data.csv). The CSV file will be used to merge into the final data file.
- **admissions_deadline.py:** This script is created to scrape data for various colleges from the admissions deadlines URL. It extracts the college specific application deadline. It takes the web URL and extract the required data. The data is stored in a DataFrame where the required data cleaning is done. Finally, the cleaned DataFrame is used to create a CSV file (admissions_deadline.csv). The CSV file will be used to merge into the final data file.

Niche.com:

To scrap data from Niche.com. We have created four scripts which are as follows:

- **niche_link_list_scraper.py:** This script is to create a list of URLs for the colleges we want to scrap the data. At the end of execution this script will generate a file “college_name_list.txt” containing all colleges URLs.
- **niche_web_scrap.py:** This script contains a function called “web_scrap” which take web URL as input and extract the college information. This function is getting called by niche_main_scraper.py.
- **niche_main_scraper.py:** This script will read URLs from “college_name_list.txt” and execute the above-mentioned function for each URL to extract the required data. Once done it will generate a temp csv file “temp_niche_college_data.csv”.

- **niche_collegename_mismatch.py:** As we are integrating the data from multiple sources. There are some mismatches in the college names. They don't have any specific pattern we can code to match the data. Due to which this script is manually updating the college name with the required one.

***Please note: The entire execution for scraping Niche.com will take more than 10 hours depending on the system.*

Also, we are using a selenium web driver for scraping. It will pop up a browser screen during the execution. Please do not close it. It will close automatically by the end of the process.

2. SEARCH COLLEGE BASED ON USER PROFILE

The main script for this module is **user_profile.py**. This script is used to search for colleges based on the Users profile. User is given an opportunity to enter the interested location (State), their SAT Math and R/W scores. It will display all the colleges by filtering the criterion entered by the user. This will help the user make informed college decisions.

3. SEARCH BASED ON COLLEGE NAME

The main script for this module is **search_college.py**. This script is to search college based on keyword entered by user. It will display all the colleges based on your keyword and then user can choose for which college they want to see the details. This part of the module will provide user with all the necessary details they required to make the decision.

4. COMPARE TWO COLLEGES FOR DETAILED COMPARISON

The main script for this module is **compare_college.py**. This script is to search two colleges based on keywords entered by user. It will display the respective colleges based on your keyword and then user can choose for which college they want to see the details. The user will then be able to view a side-by-side comparison of each colleges data to compare the two and their similarities and differences to make the decision.

5. Press 0 to exit ()

Enter 0 to exit the main application.

DEMO

1. Run the Program

- To run the program, on the command prompt type – `python main_app.py`. It will show you below screen

```
python main_app.py
```

```

=====
SECTION-D2,PROJECT GROUP : S
BRIGHT ACADEMY- Empowering Youth For A Bright Future
=====
MODULE 1: REFRESH DATA
MODULE 2: SEARCH BASED ON USER PROFILE
MODULE 3: SEARCH BASED ON COLLEGE NAME
MODULE 4: COMPARE TWO COLLEGES FOR DETAILED COMPARISON

Enter '0' to exit.

Please Enter Module ID to begin with:

```

- On the prompt, you can specify the module id to run.

2. REFRESH THE DATA:

- If you enter module id = 1, the program will show you below screen:

```

Windows PowerShell
=====
SECTION-D2,PROJECT GROUP : 5
=====
BRIGHT ACADEMY- Empowering Youth For A Bright Future
=====
MODULE 1: REFRESH DATA
MODULE 2: SEARCH BASED ON USER PROFILE
MODULE 3: SEARCH BASED ON COLLEGE NAME
MODULE 4: COMPARE TWO COLLEGES FOR DETAILED COMPARISON
Enter '0' to exit.

Please Enter Module ID to begin with: 1
=====
REFRESH DATA MODULE
=====

Option 1.Refresh Data-> UniRank
**Execution Time: 5 Mins

Option 2.Refresh Data-> NCES.ed.gov
**Execution Time: 1 Hour

Option 3.Refresh Data-> College Transition
**Execution Time: 15 Mins

Option 4.Refresh Data-> Niche.com
**Execution Time: 9-10 Hours

Option 5.Refresh all the Data.
**Execution Time: 10-12 Hours

**Please note Execution Time may vary with system.

Please enter the option ID to Refresh the Data:

```

- It will further give you four options to refresh the data for different data sources. There is another option '5' which we refresh the data for all data sources. Please check the total execution time all the processes will take. It might vary with system.
- Suppose we enter 1, to refresh the data for UniRank source.
- Once done it will show Process Completed successfully as shown below and will ask if you want to refresh any other data source or want to exit from current module.


```
=====
                                REFRESH DATA MODULE
=====

Option 1.Refresh Data-> UniRank
**Execution Time: 5 Mins

Option 2.Refresh Data-> NCES.ed.gov
**Execution Time: 1 Hour

Option 3.Refresh Data-> College Transition
**Execution Time: 15 Mins

Option 4.Refresh Data-> Niche.com
**Execution Time: 9-10 Hours

Option 5.Refresh all the Data.
**Execution Time: 10-12 Hours

**Please note Execution Time may vary with system.

Please enter the option ID to Refresh the Data:1
Fetching Data from UniRank url...
Final Data Merge In Progress...

Process Completed Successfully.

Enter 'Y' to refresh data again for other Datasources or Hit <Any Key> to exit.
```

- If you enter 'Y', it will ask you again to enter the Option ID for which data source you want to refresh the data.
- If you exit, then it will take you back to main module.

```
Exiting Refresh Data Module...
Redirecting to Main Module...
=====
                                SECTION-D2,PROJECT GROUP : 5
                                BRIGHT ACADEMY- Empowering Youth For A Bright Future
=====

MODULE 1: REFRESH DATA
MODULE 2: SEARCH BASED ON USER PROFILE
MODULE 3: SEARCH BASED ON COLLEGE NAME
MODULE 4: COMPARE TWO COLLEGES FOR DETAILED COMPARISON

Enter '0' to exit.

Please Enter Module ID to begin with:
```

You can enter the next Module ID you would like to run.

3. [SEARCH COLLEGE BASED ON USER PROFILE](#)

- If you enter module ID = 2, it will show you screen for User Profile Search.
- If you enter State = CA, SAT Math = 670, SAT R/W = 720, it will show below screen. This module will help user search best fit colleges according to their profile:

USER PROFILE SEARCH

Please enter the state where you would like to attend college: CA

Please enter your SAT Math score: 670

Please enter your Reading & Writing score: 720

=====

Congratulations, these schools in CA match your profile!

Rank	College Name	SAT Math	SAT R/W
97	San Diego State University	540-660	550-640
111	San Jose State University	520-640	510-620
115	San Francisco State University	460-560	470-570
140	Santa Clara University	640-750	630-700
175	University of San Francisco	570-670	570-660
187	Pepperdine University	600-720	600-690
198	Chapman University	580-680	590-670
230	University of San Diego	570-670	590-670
244	Loyola Marymount University	600-700	610-690
279	Sonoma State University	480-580	500-590
375	University of the Pacific	540-680	540-660
433	Occidental College	630-730	640-730
461	Pitzer College	670-770	655-740
530	Claremont McKenna College	670-770	660-730
598	Saint Mary's College of California	530-623	540-630
641	University of Redlands	530-620	540-630
768	Whittier College	520-600	530-620
769	Westmont College	540-680	570-690
777	Scripps College	650-750	670-730
1084	Soka University of America	620-760	560-650

These schools match your Math scores.

These schools match your Math scores.

Rank	College Name	SAT Math	SAT R/W
97	San Diego State University	540-660	550-640
111	San Jose State University	520-640	510-620
115	San Francisco State University	460-560	470-570
140	Santa Clara University	640-750	630-700
175	University of San Francisco	570-670	570-660
187	Pepperdine University	600-720	600-690
198	Chapman University	580-680	590-670
230	University of San Diego	570-670	590-670
244	Loyola Marymount University	600-700	610-690
279	Sonoma State University	480-580	500-590
375	University of the Pacific	540-680	540-660
433	Occidental College	630-730	640-730
461	Pitzer College	670-770	655-740
530	Claremont McKenna College	670-770	660-730
598	Saint Mary's College of California	530-623	540-630
641	University of Redlands	530-620	540-630
768	Whittier College	520-600	530-620
769	Westmont College	540-680	570-690
777	Scripps College	650-750	670-730
1084	Soka University of America	620-760	560-650

These schools match your Read & Write scores.

Rank	College Name	SAT Math	SAT R/W
3	Stanford University	720-800	700-770
21	University of Southern California	680-790	660-740
97	San Diego State University	540-660	550-640
111	San Jose State University	520-640	510-620
115	San Francisco State University	460-560	470-570
140	Santa Clara University	640-750	630-700
175	University of San Francisco	570-670	570-660
187	Pepperdine University	600-720	600-690
198	Chapman University	580-680	590-670
230	University of San Diego	570-670	590-670
244	Loyola Marymount University	600-700	610-690
274	Harvey Mudd College	770-800	720-770
279	Sonoma State University	480-580	500-590
308	Pomona College	700-790	690-750
375	University of the Pacific	540-680	540-660
433	Occidental College	630-730	640-730
461	Pitzer College	670-770	655-740
530	Claremont McKenna College	670-770	660-730
598	Saint Mary's College of California	530-623	540-630
641	University of Redlands	530-620	540-630
768	Whittier College	520-600	530-620
769	Westmont College	540-680	570-690
777	Scripps College	650-750	670-730
1084	Soka University of America	620-760	560-650

- If you enter State= CA but your SAT Math or SAT R/W scores are not in the range of the data available, it will show below screen:

```

USER PROFILE SEARCH

Please enter the state where you would like to attend college: CA

Please enter your SAT Math score: 400

Please enter your Reading & Writing score: 670
=====

Sorry, no schools in CA matched your Math scores. But these schools match your Read & Write scores.

Rank College Name SAT Math SAT R/W
21 University of Southern California 680-790 660-740
97 San Diego State University 540-660 550-640
111 San Jose State University 520-640 510-620
115 San Francisco State University 460-560 470-570
140 Santa Clara University 640-750 630-700
175 University of San Francisco 570-670 570-660
187 Pepperdine University 600-720 600-690
198 Chapman University 580-680 590-670
230 University of San Diego 570-670 590-670
244 Loyola Marymount University 600-700 610-690
279 Sonoma State University 480-580 500-590
375 University of the Pacific 540-680 540-660
433 Occidental College 630-730 640-730
461 Pitzer College 670-770 655-740
530 Claremont McKenna College 670-770 660-730
598 Saint Mary's College of California 530-623 540-630
641 University of Redlands 530-620 540-630
768 Whittier College 520-600 530-620
769 Westmont College 540-680 570-690
777 Scripps College 650-750 670-730
1084 Soka University of America 620-760 560-650

```

```

USER PROFILE SEARCH

Please enter the state where you would like to attend college: CA

Please enter your SAT Math score: 670

Please enter your Reading & Writing score: 400
=====

Sorry, no schools in CA matched your Read & Write scores. But these schools match your Math scores.

Rank College Name SAT Math SAT R/W
97 San Diego State University 540-660 550-640
111 San Jose State University 520-640 510-620
115 San Francisco State University 460-560 470-570
140 Santa Clara University 640-750 630-700
175 University of San Francisco 570-670 570-660
187 Pepperdine University 600-720 600-690
198 Chapman University 580-680 590-670
230 University of San Diego 570-670 590-670
244 Loyola Marymount University 600-700 610-690
279 Sonoma State University 480-580 500-590
375 University of the Pacific 540-680 540-660
433 Occidental College 630-730 640-730
461 Pitzer College 670-770 655-740
530 Claremont McKenna College 670-770 660-730
598 Saint Mary's College of California 530-623 540-630
641 University of Redlands 530-620 540-630
768 Whittier College 520-600 530-620
769 Westmont College 540-680 570-690
777 Scripps College 650-750 670-730
1084 Soka University of America 620-760 560-650

```

- If you enter State= CA but your SAT Math and SAT R/W scores are not in the range of the data available, it will show below screen:

```

USER PROFILE SEARCH

Please enter the state where you would like to attend college: CA

Please enter your SAT Math score: 402

Please enter your Reading & Writing score: 400
=====

Sorry, there are no schools in CA that matched your profile.

You may want to consider evaluating colleges in another state.

```

- If you enter a state with a low population, for example, State = ME, and then enter scores that do not provide a match it will show you there are no schools that matched your profile. If the number of schools in the state with SAT data is 10 or less then the program will let the user know there are few schools in the state.

```
=====
                        USER PROFILE SEARCH
=====

Please enter the state where you would like to attend college: ME

Please enter your SAT Math score: 500

Please enter your Reading & Writing score: 500
=====

Sorry, there are no schools in ME that matched your profile.

There are only 3 colleges in ME where SAT score data is available:
Colby College
Bowdoin College
Bates College

You may want to consider evaluating colleges in another state.
```

4. SEARCH BASED ON COLLEGE NAME

- If you enter module ID = 3, it will show below screen. This module will help user search colleges based on their name.

```
=====
                        SECTION-02,PROJECT GROUP : 5
                        BRIGHT ACADEMY- Empowering Youth For A Bright Future
=====

MODULE 1: REFRESH DATA
MODULE 2: SEARCH BASED ON USER PROFILE
MODULE 3: SEARCH BASED ON COLLEGE NAME
MODULE 4: COMPARE TWO COLLEGES FOR DETAILED COMPARISON

Enter '0' to exit.

Please Enter Module ID to begin with: 3
=====
                        SEARCH BASED ON COLLEGE NAME
=====

Please enter college name:texas
```

- You can enter any keyword here. Based on the word it will show you all the college name containing that word. For example, if you entered keyword 'texas'. It will give you all the college names based on that keyword.

```

SEARCH BASED ON COLLEGE NAME
=====
Please enter college name:texas

Below mentioned are the colleges you might be looking for:
Id                               College Name
-----
13                               The University of Texas at Austin
36                               Texas A&M University
106                              University of North Texas
121                              Texas Tech University
128                              The University of Texas at Dallas
156                              The University of Texas at San Antonio
163                              The University of Texas at Arlington
167                              The University of Texas MD Anderson Cancer Center
184                              Texas State University
227                              The University of Texas at El Paso
259                              Texas Christian University
288                              University of Texas Southwestern Medical Center
303                              The University of Texas Health Science Center at San Antonio
326                              The University of Texas Health Science Center at Houston
337                              The University of Texas Medical Branch at Galveston
353                              University of Texas Rio Grande Valley
401                              Texas A&M University-Corpus Christi
479                              West Texas A&M University
498                              Texas Woman's University
531                              Texas Tech University Health Sciences Center
608                              The University of Texas at Tyler
613                              Texas A&M University-Commerce
666                              Texas Southern University
755                              Texas A&M University-Kingsville
787                              Texas A&M International University
856                              Texas A&M University at Galveston
948                              Concordia University Texas
974                              South Texas College of Law
1025                             The University of Texas Permian Basin
1040                             University of North Texas Health Science Center
1148                             Texas Wesleyan University
1250                             South Texas College
1272                             Texas Lutheran University

```

- Enter the respective College ID for which you want to see the results. Suppose you entered '13' to display detail for The University of Texas at Austin. It will display as below:

```

Please enter College Id to see result :13
Printing the results...

THE UNIVERSITY OF TEXAS AT AUSTIN
=====
1.College Report Card

US Ranking : 14
Overall Grade: A+

College Grade Card:
Academics : A+
Value : A+
Diversity : A
Campus : A-
Athletics : A+
Party Scene : A+
Professors : A
Location : A+
Dorms : C+
Campus Food : A
Student Life : A+
Safety : B-
=====

```

```
Windows PowerShell

=====
2.About
City: Austin
State: TX

UT Austin is a highly rated public university located in Austin, Texas. It is a large institution with an enrollment of 37,515 undergraduate students. Admissions is fairly competitive as the UT Austin acceptance rate is 32%. Popular majors include Business, Biology, and Economics. Graduating 86% of students, UT Austin alumni go on to earn a starting salary of $46,000.

The University of Texas at Austin Rankings:
Best Colleges for Communications in America:7 of 917,Best Colleges for Business in America:8 of 1,223,Best Colleges for Accounting and Finance in America:9 of 814

Address: 110 Inner Campus Drive Austin Texas 78705
Website: www.utexas.edu/
College Type: 4-year Public
College Housing: Yes
=====
3.Admissions

Acceptance Rate: 32%
SAT Math Score Requirement: 600-750
SAT R/W Score Requirement: 610-720
Admissions Deadline: November 1

=====
4.Students

Student Population: 50476 (40048 undergraduate)
Student Faculty Ratio: 17 to 1

=====
```

- Once done it will ask if you want to search for more colleges or want to exit().
- If you enter 'Y', it will ask you again to enter the keyword you want to look for.
- If you exit (). It will take you back to main module. Here you can again enter any Module ID you want to execute.

```
=====
Enter 'Y' to search more colleges or Hit <Any Key> to exit.

Redirecting to Main Module...

=====
SECTION-D2,PROJECT GROUP : 5

BRIGHT ACADEMY- Empowering Youth For A Bright Future

=====
MODULE 1: REFRESH DATA
MODULE 2: SEARCH BASED ON USER PROFILE
MODULE 3: SEARCH BASED ON COLLEGE NAME
MODULE 4: COMPARE TWO COLLEGES FOR DETAILED COMPARISON

Enter '0' to exit.

Please Enter Module ID to begin with:
```

5. COMPARE TWO COLLEGES FOR DETAILED COMPARISON

- When the user selects '5' from the main module they are brought to 'Compare Two Colleges', where they are able to enter two college names and view all available data to make a side-by-side comparison.
- The user is prompted to first enter a college name.

```
=====
                        COMPARE TWO COLLEGES
=====

Please enter first College Name:
```

- The user enters 'Carnegie Mellon University' for their first choice.
- They then enter 'University of Pennsylvania'. The module accounts for college names that may have branch campuses or share a root structure (ex: University of California, etc). The user is presented with a list of colleges containing 'University of Pennsylvania' and an associated ID. The user is then able to select the right college.

```
=====
                        COMPARE TWO COLLEGES
=====

Please enter first College Name: Carnegie Mellon University

Please enter second College Name: University of Pennsylvania

Below mentioned are the colleges you might be looking for:
Id                               College Name
-----
8                                University of Pennsylvania
363                              Indiana University of Pennsylvania
384                              West Chester University of Pennsylvania
425                              Shippensburg University of Pennsylvania
571                              Millersville University of Pennsylvania
580                              Bloomsburg University of Pennsylvania
668                              Kutztown University of Pennsylvania
707                              Slippery Rock University of Pennsylvania
769                              Clarion University of Pennsylvania
864                              Edinboro University of Pennsylvania
951                              California University of Pennsylvania
1118                             Mansfield University of Pennsylvania
1194                             Cheyney University of Pennsylvania

Please enter College ID to see result:|
```

- Our user then select ID '8' which is 'University of Pennsylvania'. Then, the user starts to receive data to make a side-by-side comparison starting with 1. College Report Card and 2. About.

Below mentioned are the colleges you might be looking for:

Id	College Name
8	University of Pennsylvania
363	Indiana University of Pennsylvania
384	West Chester University of Pennsylvania
425	Shippensburg University of Pennsylvania
571	Millersville University of Pennsylvania
580	Bloomsburg University of Pennsylvania
668	Kutztown University of Pennsylvania
707	Slippery Rock University of Pennsylvania
769	Clarion University of Pennsylvania
864	Edinboro University of Pennsylvania
951	California University of Pennsylvania
1118	Mansfield University of Pennsylvania
1194	Cheyney University of Pennsylvania

Please enter College ID to see result:8

=====

1.College Report Card

CARNEGIE MELLON UNIVERSITY

US Ranking : 20

Overall Grade: A+

College Grade Card:

Academics : A+,Value : A+,Diversity : A+,Campus : C+,Athletics : C+,Party Scene : B,Professors : A+,Location : A,Dorms : B-,Campus Food : C+,Student Life : A-,Safety : B

UNIVERSITY OF PENNSYLVANIA

US Ranking : 9

Overall Grade: A+

College Grade Card:

Academics : A+,Value : A+,Diversity : A+,Campus : A-,Athletics : B,Party Scene : A+,Professors : A+,Location : A+,Dorms : B-,Campus Food : B-,Student Life : A+,Safety : B+

=====

2.About

CARNEGIE MELLON UNIVERSITY

Town: Pittsburgh

Carnegie Mellon University isnt just one of the worlds most renowned educational institutions its also a hub for some of the most talented doers, dreamers and difference-makers on the planet. Carnegie Mellon is a private, internationally ranked research university with programs in areas ranging from science, technology and business to public policy, the humanities and the arts. Our community includes more than 14,000 students in the university's seven schools and colleges who benefit from a small student-to-faculty ratio and an education characterized by its focus on innovation, interdisciplinary collaboration, and implementing solutions for real world problems. Our commitment to diversity, equity and inclusion is woven into all aspects of our campus culture, and we cultivate a vibrant, welcoming environment where everyone is valued.

- Our user is then able to view 3. Admissions, 4. Students, 5. Popular Majors

```
=====
3.Admissions

CARNEGIE MELLON UNIVERSITY
Acceptance Rate: 17%
SAT Math: 760-800
SAT R/W: 700-760
Admission Deadline: 1-Nov

UNIVERSITY OF PENNSYLVANIA
Acceptance Rate: 96%
SAT Math: 750-800
SAT R/W: 710-770
Admission Deadline: 1-Nov

=====
4.Students

CARNEGIE MELLON UNIVERSITY
Student Population: 13519 (6622 undergraduate)
Student Faculty Ratio: 5 to 1

UNIVERSITY OF PENNSYLVANIA
Student Population: 26552 (11155 undergraduate)
Student Faculty Ratio: 6 to 1

=====
5.Popular Majors

CARNEGIE MELLON UNIVERSITY
Computer Science,Electrical Engineering,Mechanical Engineering,Statistics,Business,Systems Science and Theory,Chemical
Engineering,Mathematics,Bioengineering and Biomedical Engineering,Drama and Theatre Production

UNIVERSITY OF PENNSYLVANIA
Finance,Management Sciences and Information Systems,Philosophy,Nursing,Economics,Business,Biology,Political Science and Government,Information
Science,Neuroscience and Neurobiology

=====
6.Future

CARNEGIE MELLON UNIVERSITY
Employment Rate: 91%
National is 83%

Average Salary after 6 years: $83,600/ year

UNIVERSITY OF PENNSYLVANIA
Employment Rate: 91%
National is 83%

Average Salary after 6 years: $85,900/ year
National avg salary is $33,028
-----End-----
Do you want to search more? (Y/N):
```

- Our user is then able to view 6. Future and is informed the data feed has ended. The user is prompted to either continue searching (Y) or end the search (N or any other key).

```
=====
6.Future

CARNEGIE MELLON UNIVERSITY
Employment Rate: 91%
National is 83%

Average Salary after 6 years: $83,600/ year
National avg salary is $33,028

UNIVERSITY OF PENNSYLVANIA
Employment Rate: 91%
National is 83%

Average Salary after 6 years: $85,900/ year
National avg salary is $33,028
-----End-----
Do you want to search more? (Y/N):
```

- Our user selects 'Y' and the Compare Two Colleges starts over. If the user selects 'N' or any other key then they are taken back to the main module.

```
Do you want to search more? (Y/N): y

Please enter first College Name: University of Pittsburgh

Please enter second College Name: Pennsylvania State University

No record found for Pennsylvania State University. Please try another college.

Do you want to search more? (Y/N): y

Please enter first College Name: Penn State University

Please enter second College Name: University of Pittsburgh|
```

6. Once done, you can enter '0' to exit the main module.

```
Redirecting to Main Module...
=====
SECTION-D2,PROJECT GROUP : 5
BRIGHT ACADEMY- Empowering Youth For A Bright Future
=====
MODULE 1: REFRESH DATA
MODULE 2: SEARCH BASED ON USER PROFILE
MODULE 3: SEARCH BASED ON COLLEGE NAME
MODULE 4: COMPARE TWO COLLEGES FOR DETAILED COMPARISON

Enter '0' to exit.

Please Enter Module ID to begin with: 0

Good Luck for your Future.
```

REFERENCE:

For live demo, please visit our YouTube channel:

https://www.youtube.com/watch?v=cicXTcRa620&t=1s&ab_channel=ZiyouLi