

# GradFocus

## University Rankings Website: User Manual

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## Version Control

| Version | Author       | Change                                      | Date      |
|---------|--------------|---|-----------|
| 0.1     | Anish Hadkar | Initial Version                             | 7-Dec-17  |
| 0.2     | Anish Hadkar | Added Installation screenshots              | 8-Dec-17  |
| 0.3     | Anish Hadkar | Added System Functions and Appendix         | 9-Dec-17  |
| 0.4     | Anish Hadkar | Fixed table structure for Django migrations | 10-Dec-17 |
|         |              |   |           |
|         |              |   |           |

# 1. Introduction

## Introduction

### 1.1 Purpose

Our mission is to guide students to determine which school best suits their requirements. Our website provides a list of universities for three streams – MBA, MSIS and MSBA. It has the information of all the universities listed, based on rank. The interested customer's profile is stored on the website once he's registered. The customer can access the university information and based on his credentials, the customer can compare universities and their ranks which are suitable for his profile. The GradFocus consultants will provide the customer with the list of most appropriate colleges based on their overall profile.

### 1.2 Intended Audience and Reading Conventions

This document is intended for anyone who is trying to install and use the GradFocus website. This document can be used by project managers, developer, testers, users.

### 1.3 Project Scope

The GradFocus website provides a list of top ranking universities for the Information Systems program, the Business Analytics course and the MBA program. Students can add their information to the website and the GradFocus consultants match the best programs for that student so that the student can choose the best program according to their needs and requirements.

### 1.4 References

You can use the following documents for help with the installation of the website suite.

GitHub repository: <https://github.com/hadkarAnish/GradFocus>

MySQL installation: <https://www.digitalocean.com/community/tutorials/how-to-use-mysql-or-mariadb-with-your-django-application-on-ubuntu-14-04>

Creating a database in MySQL: <https://www.wikihow.com/Create-a-Database-in-MySQL>

MySQL download: <https://dev.mysql.com/downloads/mysql/>

Python download: <https://www.python.org/downloads/release/python-362/>

Rankings information: <https://www.usnews.com/best-graduate-schools/top-business-schools>

Rankings information: <https://yocket.in/universities/reviews/>

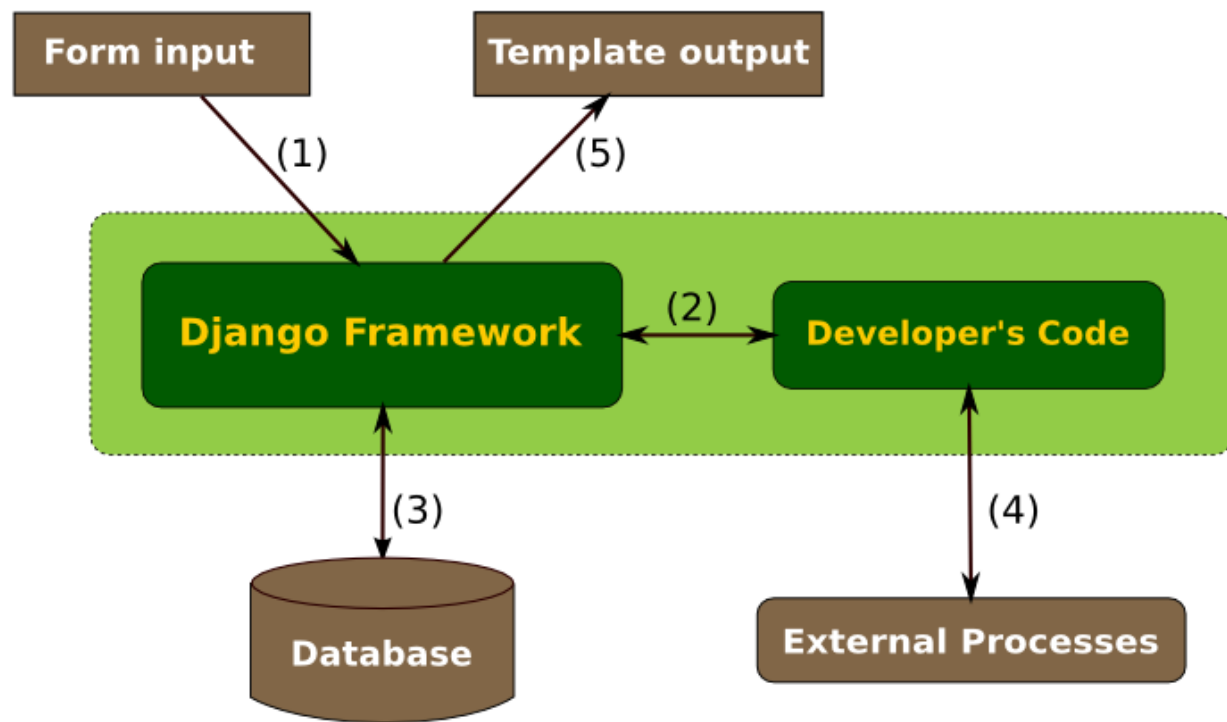
Django framework: <https://code.djangoproject.com/wiki/StringEncoding>

## 2. Overall Description

### 2.1 Product Perspective

The GradFocus website is a new website that connects a MySQL database with HTML templates using Django Web Framework. The MySQL database contains the tables that the website refers to. The website can add, update and delete data from the tables.

System diagram of the website and MySQL database -



### 2.2 Product Features

The GradFocus website has different webpages that help find information about the rankings of the IS, BA and MBA programs. The webpage consists of an index page that provides access to all other components of the website. This includes the cities, universities, program and their courses. Student webpages and the matches for each student to each program are also displayed. The About section provides information about GradFocus and the index page has links to the GitHub page for GradFocus.

### 2.3 User Classes

The primary users of the system will be students. The website helps students find information about the various cities and the universities in each of the cities. The Matches webpage also gives the program matches for each student that is registered on the website after the GradFocus consultants have added data to the system.

The website can also be used by universities to check the rankings of their programs and get an idea about the interest of their program in student circles.



## 2.4 Operating Environment

The website can be used by the clients on any operating system. It only needs a modern web browser to display the contents of the website. It is tested on Windows 10 Operating System with Google Chrome version 63.0.3239.84. The web server used is on Window operating system but should work on Mac. The server will require MySQL database, Python with Django framework and MySQL to Django connector.

## 2.5 User Documentation

The user manual for the installation of the GradFocus server is provided in the 1.5 references section. The installation of the software for the server is included in this User Manual.

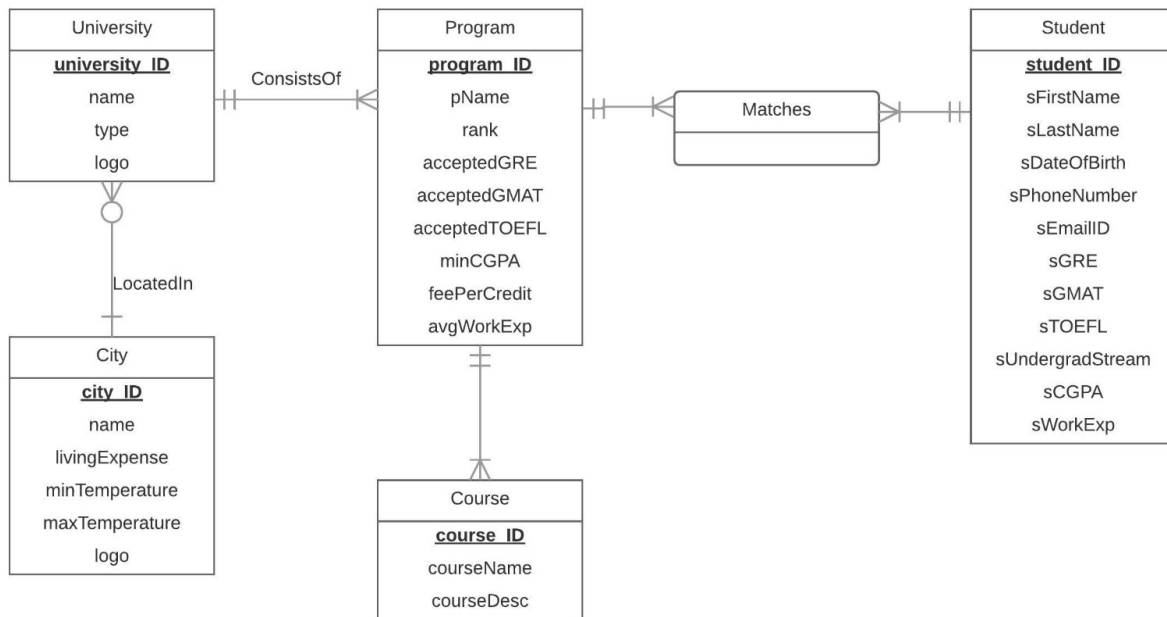
## 2.6 Assumptions and Dependencies

It is assumed that the database maintainers and the consultants for GradFocus know how to add, update and delete rows and entries from the database tables. This will be required to add data to create the program matches for new students.

## 3. Design

### 3.1 Conceptual Database Design

Entity Relationship Diagram: there are five entities including City, University, Program, Course and Student and one associative entity Matches.



### 3.2 Logical Database Design

#### 3.2.1 Relations

Rankings\_city(city id, city\_name, city\_livingExpense, city\_minTemperature, city\_maxTemperature, city\_logo)

Rankings\_university(university id, university\_name, university\_type, university\_logo, city\_id)

Rankings\_program(program id, program\_pName, program\_rank, program\_acceptedGRE, program\_acceptedGMAT, program\_acceptedTOEFL, program\_minCGPA, program\_feePerCredit, program\_avgWorkExp, university\_id)

Rankings\_course(course id, course\_Name, course\_Description, program\_id)

Rankings\_student(student id, student\_sFirstName, student\_sLastName, student\_sDateOfBirth, student\_sPhoneNumber, student\_sEmailId, student\_sGRE, student\_sGMAT, student\_sCGPA, student\_sWorkExp, student\_sUnderGradStream, student\_sTOEFL)

Rankings\_matches(program id, student id)

## 3.2.2 Functional Dependency

city\_id → city\_name, city\_livingExpense, city\_minTemperature, city\_maxTemperature, city\_logo -primary key

university\_id → university\_name, university\_type, university\_logo, city\_id -primary key

program\_id → program\_pName, program\_rank, program\_acceptedGRE, program\_acceptedGMAT, program\_acceptedTOEFL, program\_minCGPA, program\_feePerCredit, program\_avgWorkExp, university\_id -primary key

course\_id → course\_Name, course\_Description, program\_id -primary key

student\_id → student\_sFirstName, student\_sLastName, student\_sDateOfBirth, student\_sPhoneNumber, student\_sEmailId, student\_sGRE, student\_sGMAT, student\_sCGPA, student\_sWorkExp, student\_sUnderGradStream, student\_sTOEFL -primary key

program\_id, student\_id → -primary key

## 3.2.3 Normalization

City (**city\_Id**, city\_Name, city\_livingExpense, city\_minTemperature, city\_maxTemperature, city\_logo) = 3NF

University ( **university\_Id**, university\_name, university\_type, city\_Id) = 3NF

Program (**program\_Id**, program\_pName, program\_rank, program\_acceptedGRE, program\_acceptedGMAT, program\_acceptedTOEFL, program\_minCGPA, program\_feePerCredit, program\_avgWorkExp, university\_Id) = 3NF

Course( **course\_Id**, course\_Name, course\_Description, program\_id) = 3NF

Student( **student\_Id**, student\_sFirstName, student\_sLastName, student\_sDateOfBirth, student\_sPhoneNumber, student\_sEmailId, student\_sGRE, student\_sGMAT, student\_sTOEFL, student\_sUndergradStream, student\_sCGPA, student\_sWorkExp) = 3NF

Matches (**program\_Id**, **student\_Id**) = 3NF

## 3.2.5 Referential integrity constraints and actions

| Relation   | Foreign Key   | Base Relation | Primary Key   | Constraint: ON DELETE | Business Rule | Constraint: ON UPDATE | Business Rule |
|------------|---------------|---------------|---------------|-----------------------|---------------|-----------------------|---------------|
| University | City_Id       | City          | City_Id       | CASCADE               | R4            | CASCADE               | R3            |
| Program    | University_Id | University    | University_Id | CASCADE               | R2            | CASCADE               | R1            |
| Matches    | Program_id    | Program       | Program_id    | NO ACTION             | R6            | NO ACTION             | R5            |
| Matches    | Student_Id    | Student       | Student_id    | NO ACTION             | R6            | NO ACTION             | R5            |
| Course     | Program_id    | Program       | Program_id    | CASCADE               | R7            | CASCADE               | R8            |

### 3.2.6 Business Rules

1. When University information changes in the database, all the programs offered by the university in the program table should also be changed.
2. When University goes out of commission, all the programs offered by the university should also be deleted.
3. When city details are changed, the corresponding details of universities located in the city are also changed.
4. When city is deleted, the corresponding universities are also deleted.
5. When a student matches with a particular program, the corresponding student and program cannot be changed.
6. When a student matches with a particular program, the corresponding student and program cannot be deleted.
7. When a program is deleted from the database, the corresponding courses offered in the program are also deleted.
8. When a program is updated in the database, the corresponding courses offered in the program are also updated.

## 3.3 Physical Database Design

### 3.3.1 Create statements

The installation script handles the creation of the tables required for the website, so the following statements **DO NOT** need to be **run manually**. These are given just for reference.



Create  
statements.docx

### 3.3.2 Insert statements

**Please run the INSERT statements** from the below file in MySQL console to add data to the tables. You will need to run these **after the Django server installation**.



INSERT  
statements.sql

### 3.3.3. Drop statements

Delete all tables from the database.

```
DROP TABLE rankings_matches;  
DROP TABLE rankings_course;  
DROP TABLE rankings_program;  
DROP TABLE rankings_university;
```

## Design

```
DROP TABLE rankings_city;  
DROP TABLE rankings_student;
```

### 3.3.4 Count statements

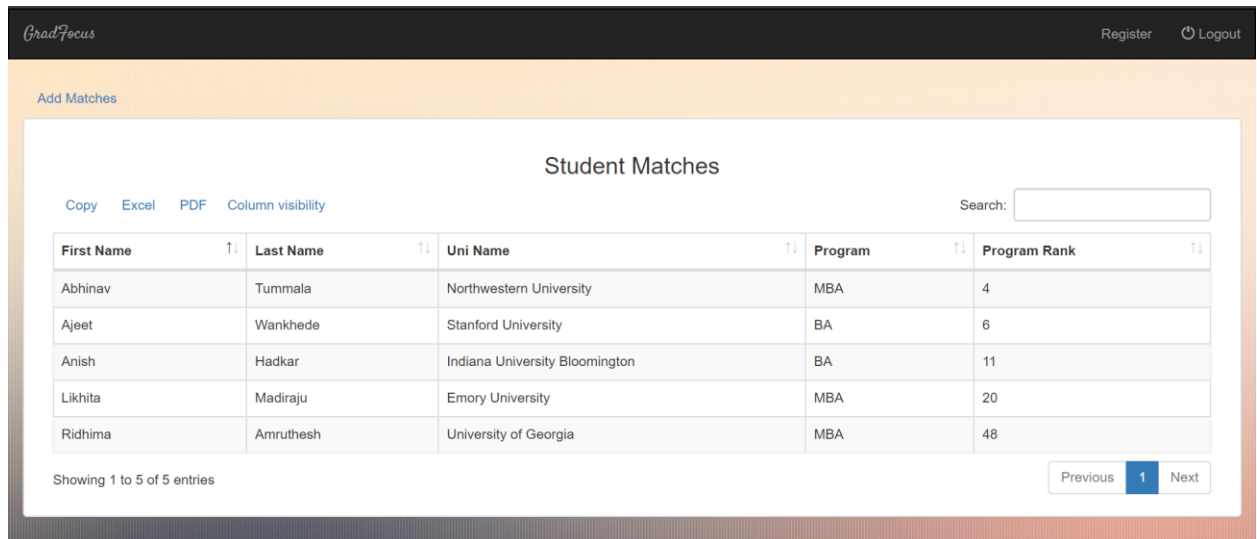
Count of all the tables:

```
SELECT COUNT(*) FROM rankings_matches;  
SELECT COUNT(*) FROM rankings_course;  
SELECT COUNT(*) FROM rankings_program;  
SELECT COUNT(*) FROM rankings_university;  
SELECT COUNT(*) FROM rankings_city;  
SELECT COUNT(*) FROM rankings_student;
```

### 3.3.5 Use cases

Select the matches for student and the programs they may be able to get

```
select s.sfirstname,s.slastname, u.name ,p.pName, p.rank from rankings_student s,rankings_matches  
m,rankings_program p, rankings_university u where s.id=m.student_id and p.id=m.program_id and  
u.id=p.university_id;
```

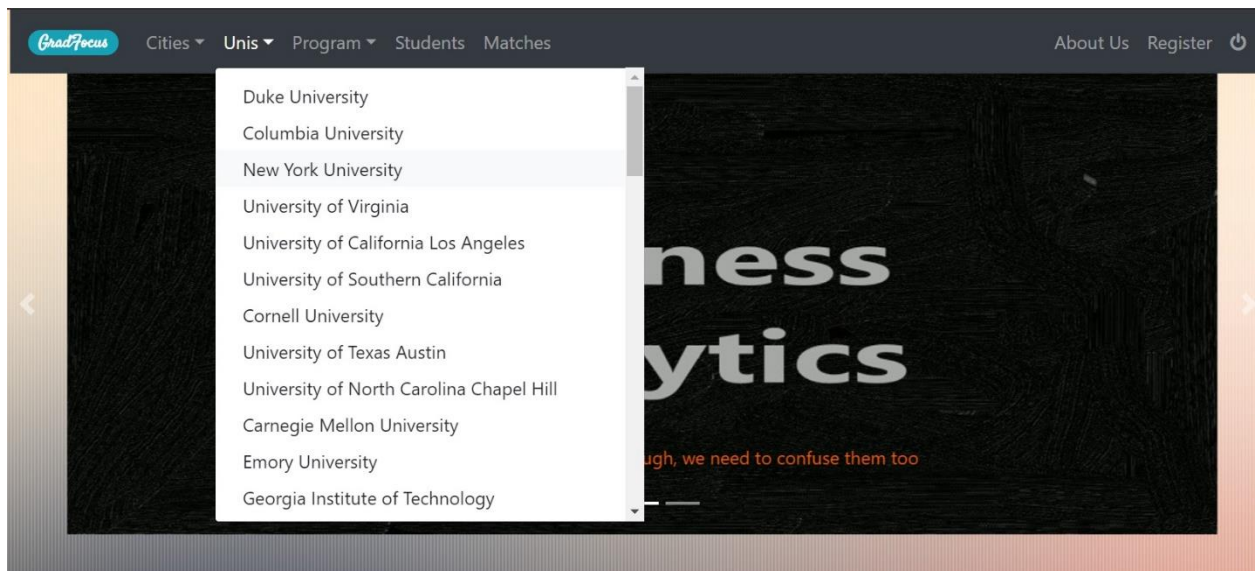


The screenshot shows the GradFocus web application interface. At the top, there's a dark header with the 'GradFocus' logo on the left and 'Register' and 'Logout' links on the right. Below the header is an orange banner with the text 'Add Matches'. The main content area is titled 'Student Matches' and contains a table with 5 columns: 'First Name', 'Last Name', 'Uni Name', 'Program', and 'Program Rank'. Each column has a small '↑↓' icon for sorting. The table displays 5 rows of data. Above the table, there are links for 'Copy', 'Excel', 'PDF', and 'Column visibility', and a search bar labeled 'Search:'. Below the table, it says 'Showing 1 to 5 of 5 entries' and has pagination controls with 'Previous', '1' (selected), and 'Next' buttons.

| First Name | Last Name | Uni Name                       | Program | Program Rank |
|------------|-----------|--------------------------------|---------|--------------|
| Abhinav    | Tummala   | Northwestern University        | MBA     | 4            |
| Ajeet      | Wankhede  | Stanford University            | BA      | 6            |
| Anish      | Hadkar    | Indiana University Bloomington | BA      | 11           |
| Likhita    | Madiraju  | Emory University               | MBA     | 20           |
| Ridhima    | Amruthesh | University of Georgia          | MBA     | 48           |

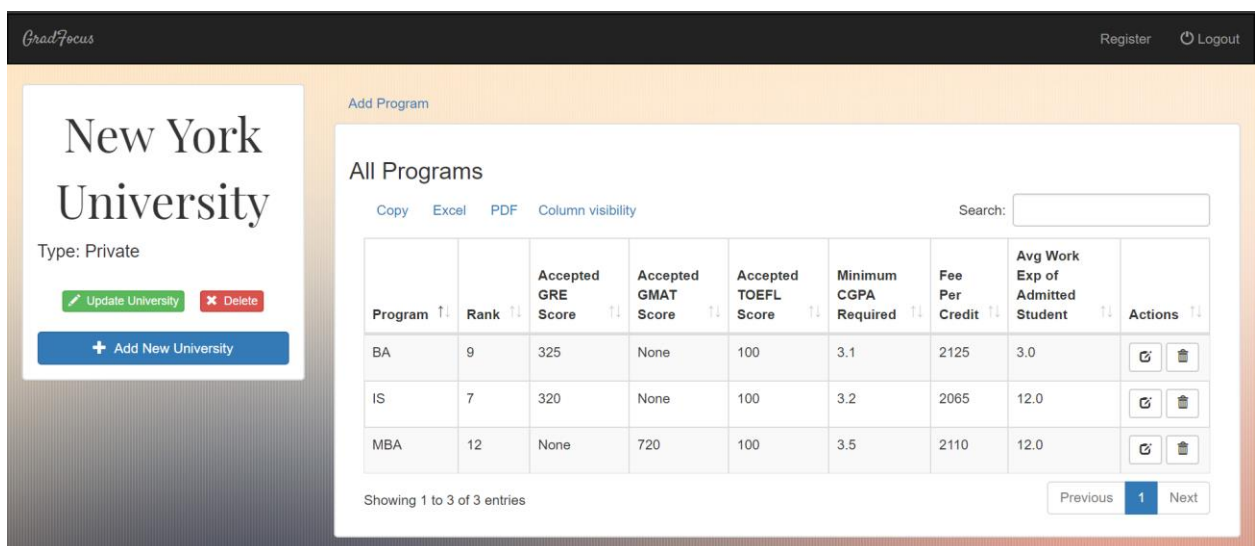
Select all universities.

```
SELECT *  
FROM rankings_university;
```



SELECT all programs in a university

```
SELECT *
FROM rankings_university u,
rankings_program p
WHERE u.Name = 'New York University'
AND u.id = p.university_id;
```



## 4. Installation



## 4.1 MySQL

MySQL download: version 5.7.20: Click on “No thanks, just start my installation”

### Begin Your Download

mysql-installer-community-5.7.20.0.msi

Login Now or Sign Up for a free account.

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- Report and track bugs in the MySQL bug system
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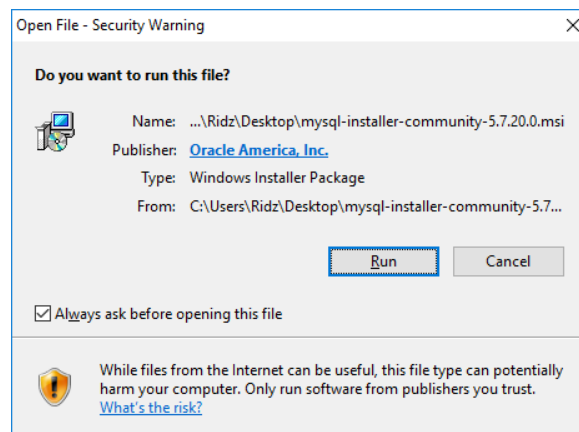
Sign Up »

for an Oracle Web account

MySQL.com is using Oracle SSO for authentication. If you already have an Oracle Web account, click the Login link. Otherwise, you can signup for a free account by clicking the Sign Up link and following the instructions.

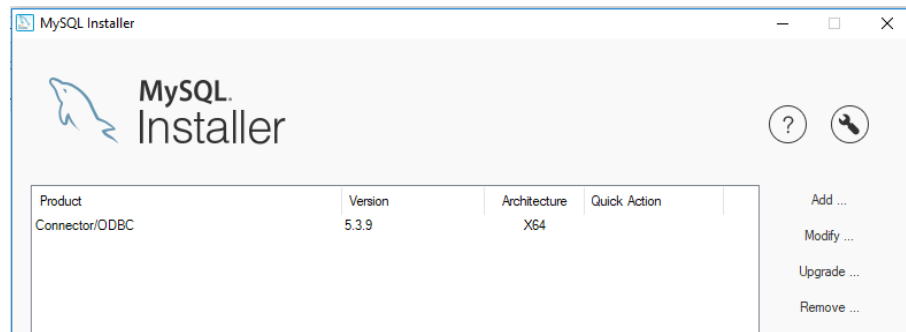
No thanks, just start my download.

### Installing MySQL

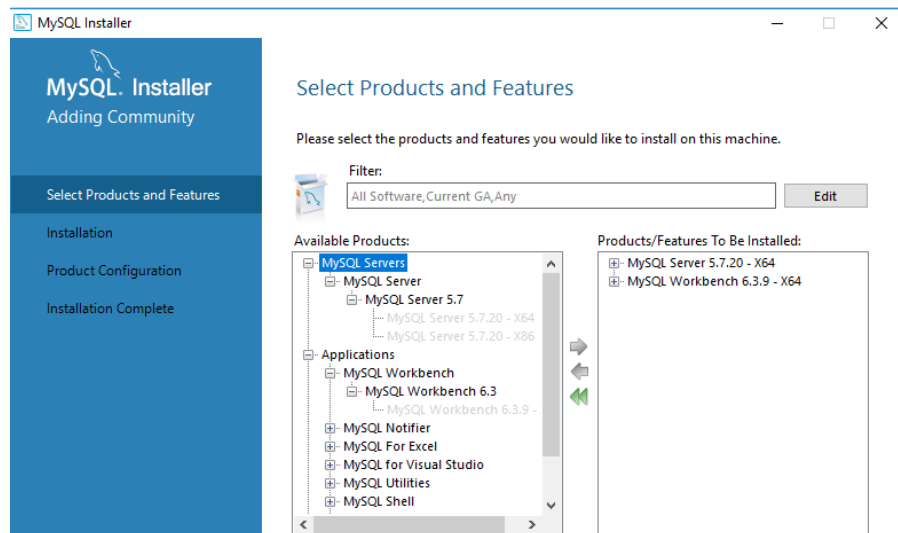


Click on Add:

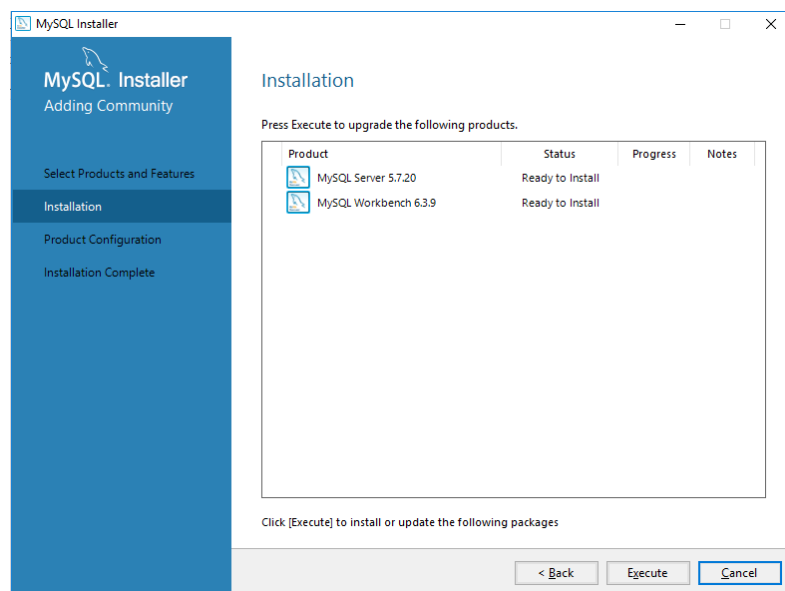
## Installation: MySQL



Add MySQL Server 5.7.20 and the MySQL workbench and then click on next:

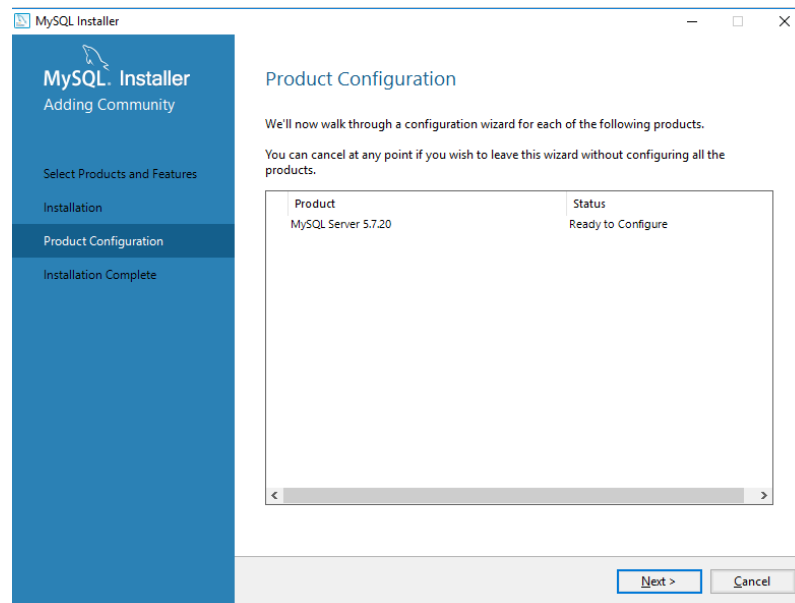


Click on execute:

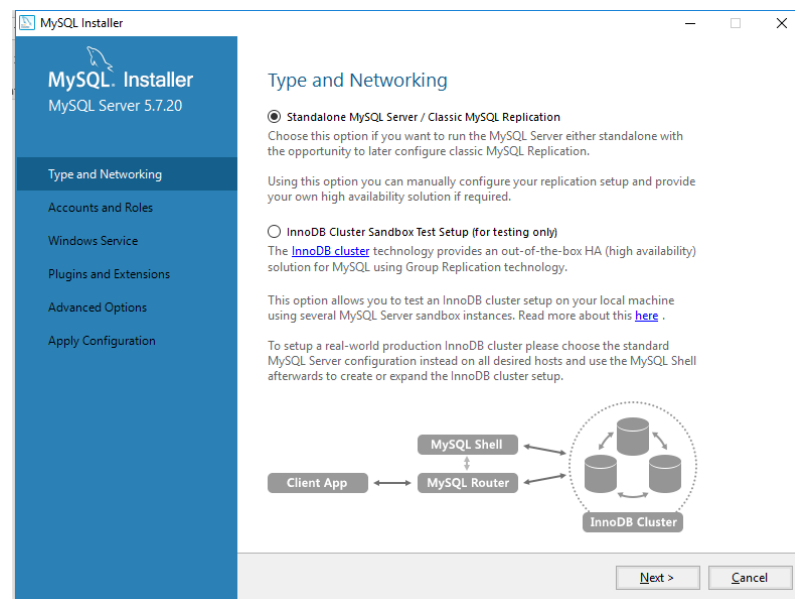


## Installation: MySQL

After installation click on Next:

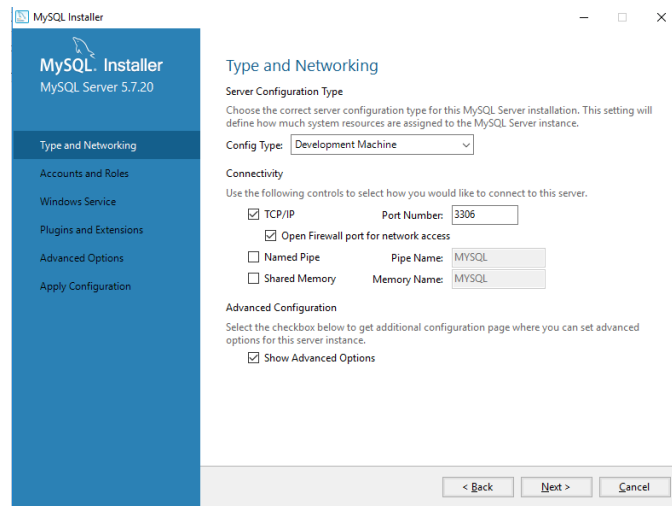


Choose standalone MySQL server and click on next:

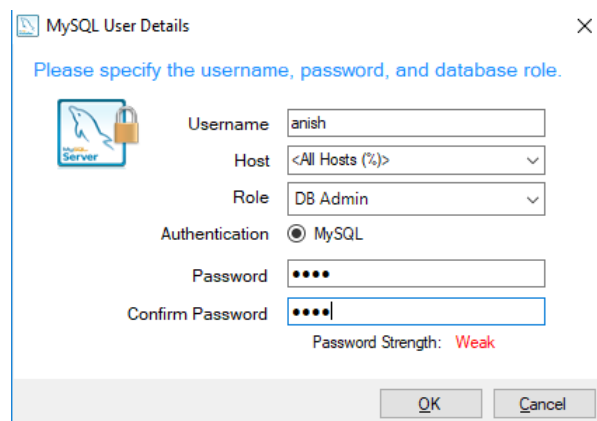
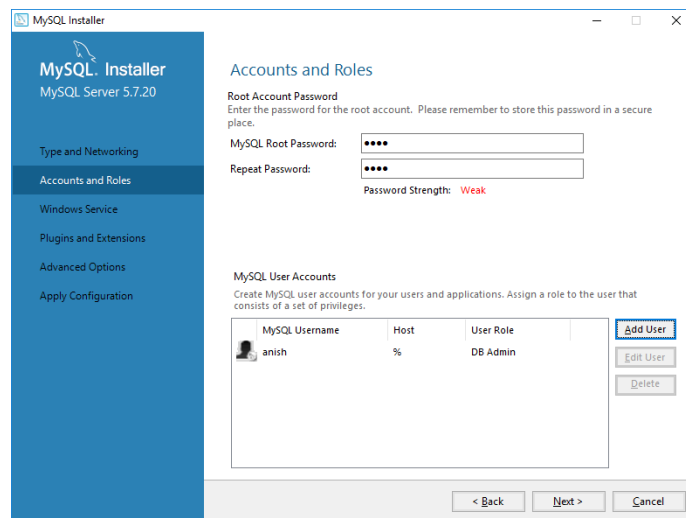


## Installation: MySQL

Keep the setting Default and click on Next. Note that the default port number we have set is 3306

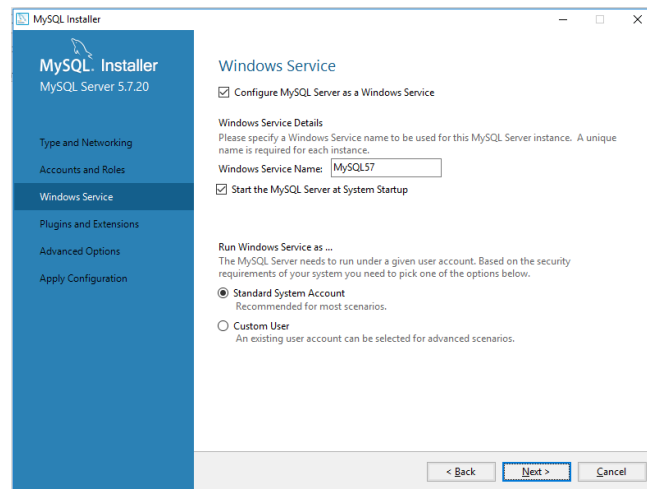


Setup the root password and Add a new User: I have set it to "1234" then after adding a User Anish, please click on Next

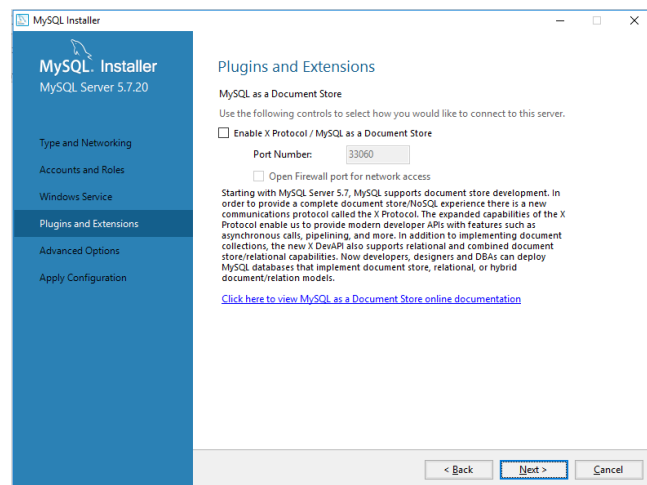


## Installation: MySQL

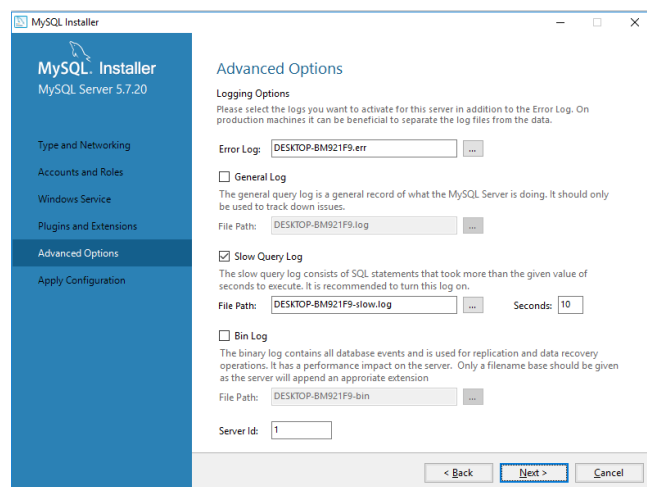
Keep settings default and click next:



Click on Next on the plugin screen:

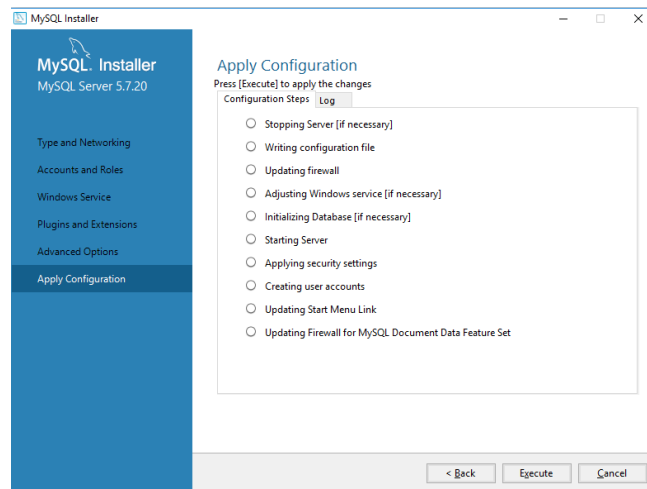


If you had selected Advanced Options: you will get this screen, for now just click on Next:

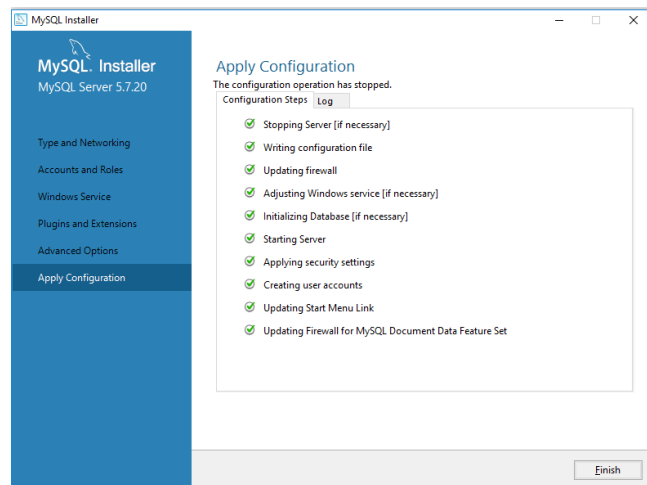


## Installation: MySQL

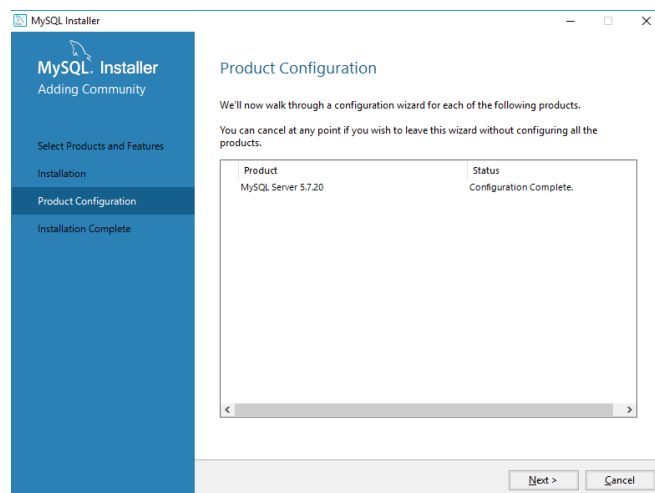
Click on Execute:



Click on Finish:

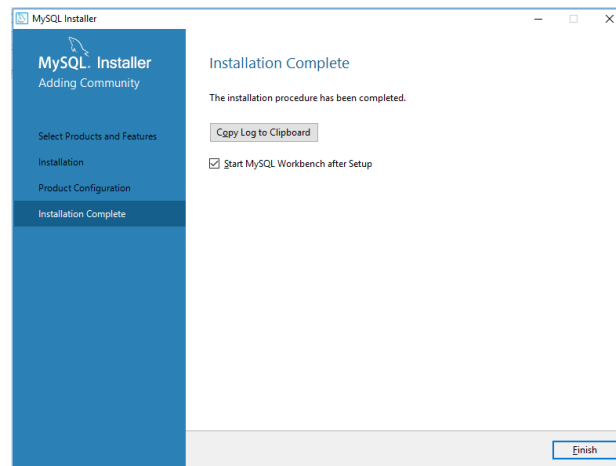


Click on Net:

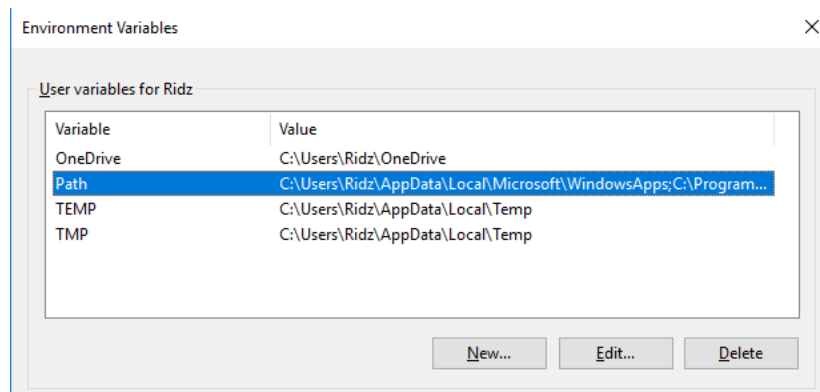
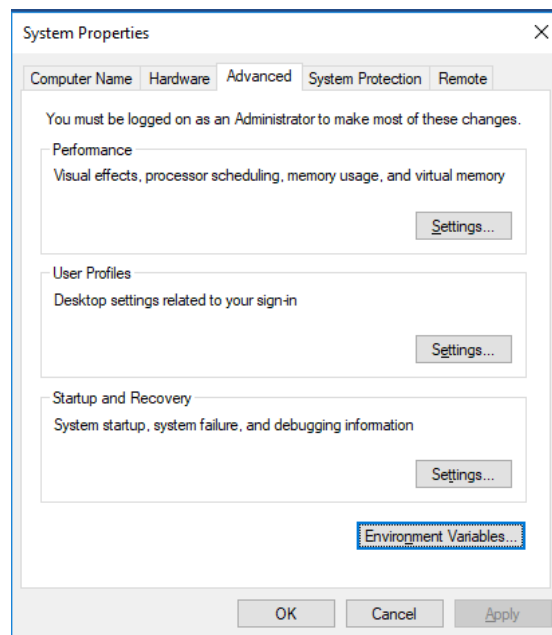


## Installation: MySQL

Click on Finish:



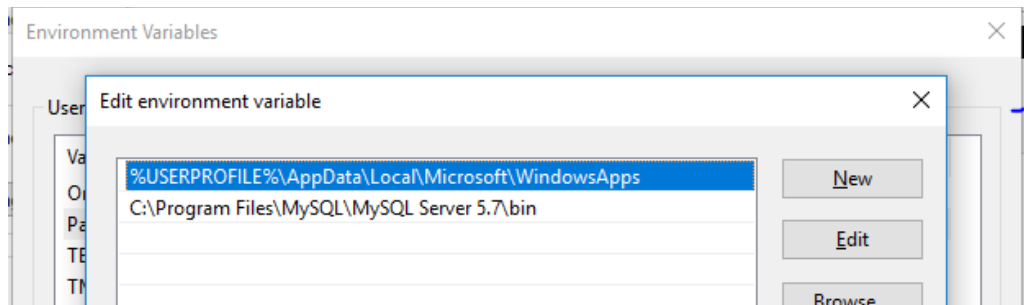
Add MySQL to the environmental variables:



## Installation: MySQL

Navigate to Windows C drive and Program Files → MySQL → MySQL Server .7 → bin

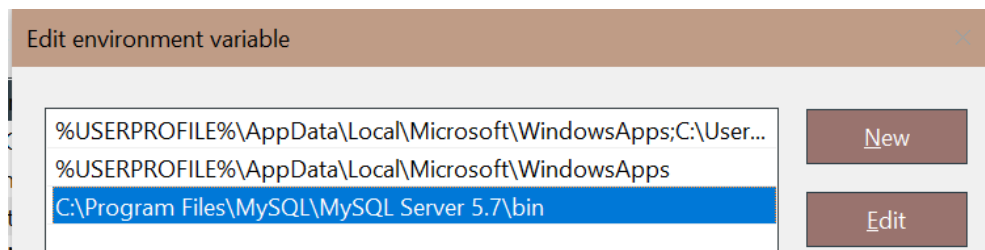
Copy this path from the Windows address bar and paste it in the environment variables PATH variable:



Note: Django supports MySQL version 5.5 and higher.

You will be asked to set a database user and password during MySQL's installation. Please remember this.

After installation add MySQL's bin folder to the environment variables:



Check MySQL version: with

```
mysql -V
```

```
PS D:\Python\GradSource> mysql -V
C:\Program Files\MySQL\MySQL Server 5.7\bin\mysql.exe Ver 14.14 Distrib 5.7.20, for Win64 (x86_64)
```

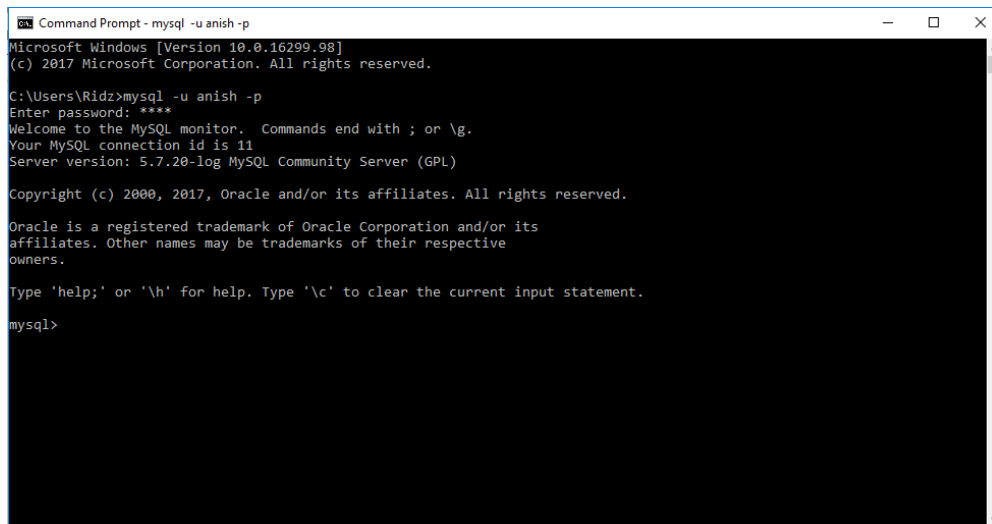


## 4.2 MySQL Database creation

Start Command Prompt:

Logon to MySQL session:

```
mysql -u anish -p
```



“anish” is the user you created during the installation of MySQL.

You will be prompted for a password and here you enter the password you created during the MySQL installation.

We then create a database for the project:

```
CREATE DATABASE anish_project;
```

```
mysql> CREATE DATABASE anish_project;  
Query OK, 1 row affected (0.00 sec)
```

We then have to create a database user that has access to the database “anish\_project”

```
CREATE USER anish@localhost IDENTIFIED BY '1234';
```

```
mysql> CREATE USER anish@localhost IDENTIFIED BY '1234';  
Query OK, 0 rows affected (0.02 sec)
```

We must give all privileges to this user:

```
GRANT ALL PRIVILEGES ON anish_project.* to anish@localhost;
```

Flush all privileges so that we have the changes we made in the current session:

```
FLUSH PRIVILEGES;  
exit;
```

## Installation: MySQL - Database

```
mysql> GRANT ALL PRIVILEGES ON anish_project.* to anish@localhost;
Query OK, 0 rows affected (0.00 sec)

mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.00 sec)

mysql> exit;
Bye
```

More resources to check if you need help with the above steps:

If you decide to not create this database and/or user, then on installation of django's repository you will need to change the django's connections in the 'settings.py' file located in:

```
Directory: D:\Python\GradSource\GradSource

Mode                LastWriteTime         Length Name
----                -
-a-----          11/28/2017   1:17 PM           3620 settings.py
```

```
1. DATABASES = {
2.     'default': {
3.         'ENGINE': 'django.db.backends.mysql',
4.         'NAME': 'anish_project',
5.         'USER': 'anish',
6.         'PASSWORD': '1234',
7.         'HOST': 'localhost', # Or an IP Address that your DB is
            hosted on
8.         'PORT': '3306',
9.     }
10. }
```

```
1. DATABASES = {
2.     'default': {
3.         'ENGINE': 'django.db.backends.mysql',
4.         'NAME': 'your_database_name',
5.         'USER': 'your_database_user',
6.         'PASSWORD': 'your_users_password',
7.         'HOST': 'localhost', # Or an IP Address that your DB is
            hosted on
8.         'PORT': '3306_is_the_default_port',
9.     }
10. }
```

Default setup:

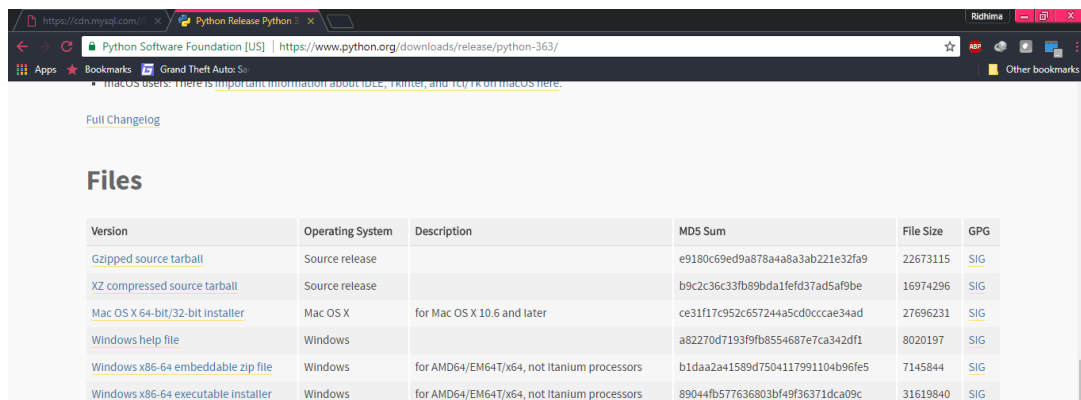
| Database name | User  | Password | Port |
|---------------|-------|----------|------|
| anish_project | anish | 1234     | 3306 |

## Installation: Python

### 4.3 Python and Django

#### 4.3.1 Python installation

Install Python version 3.6.2 or higher –

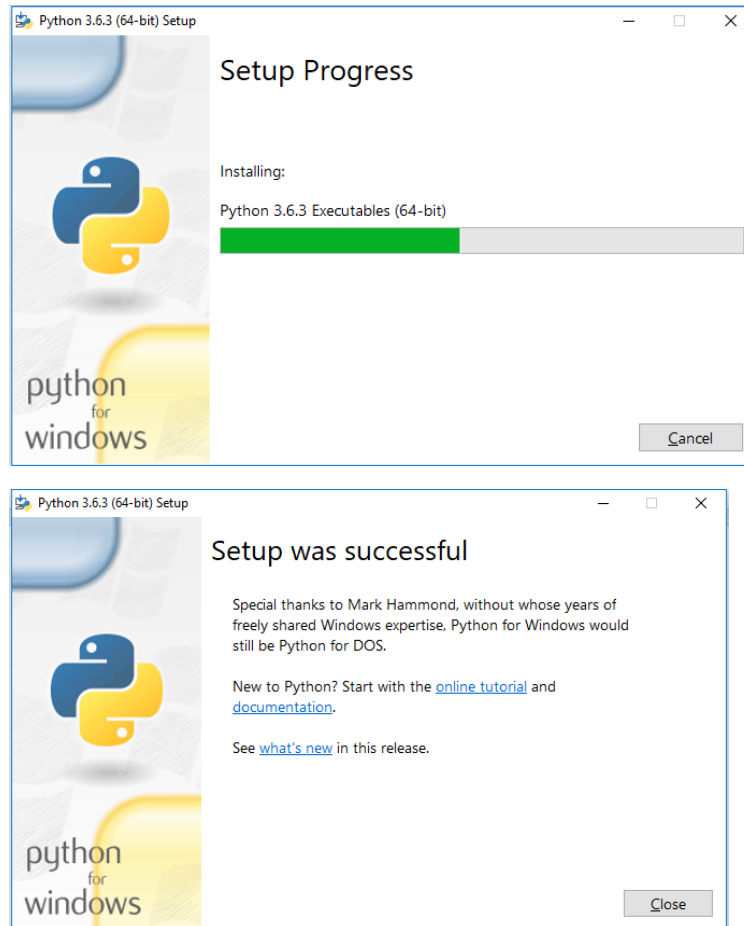
A screenshot of a web browser showing the Python Software Foundation's download page for Python 3.6.3. The page has a dark header with the Python logo and navigation links. Below the header, there's a 'Files' section with a table of download links. The table includes columns for Version, Operating System, Description, MD5 Sum, File Size, and GPG. The rows list various download options for different operating systems like Windows, Mac OS X, and Linux, including source releases and installers.

| Version   | Operating System | Description                                 | MD5 Sum                          | File Size | GPG                 |
|---|------------------|---|----------------------------------|-----------|---------------------|
| <a href="#">Gzipped source tarball</a>              | Source release   |   | e9180c69ed9a878a4a8a3ab221e32fa9 | 22673115  | <a href="#">SIG</a> |
| <a href="#">XZ compressed source tarball</a>        | Source release   |   | b9c2c36c33fb89bda1fed37ad5af9be  | 16974296  | <a href="#">SIG</a> |
| <a href="#">Mac OS X 64-bit/32-bit installer</a>    | Mac OS X         | for Mac OS X 10.6 and later                 | ce31f17c952c657244a5cd0ccae34ad  | 27696231  | <a href="#">SIG</a> |
| <a href="#">Windows help file</a>                   | Windows          |   | a82270d7193f9fb8554687e7ca342df1 | 8020197   | <a href="#">SIG</a> |
| <a href="#">Windows x86-64 embeddable zip file</a>  | Windows          | for AMD64/EM64T/x64, not Itanium processors | b1daa2a41589d7504117991104b96fe5 | 7145844   | <a href="#">SIG</a> |
| <a href="#">Windows x86-64 executable installer</a> | Windows          | for AMD64/EM64T/x64, not Itanium processors | 89044fb577636803bf49f36371dca09c | 31619840  | <a href="#">SIG</a> |

Choose Install now



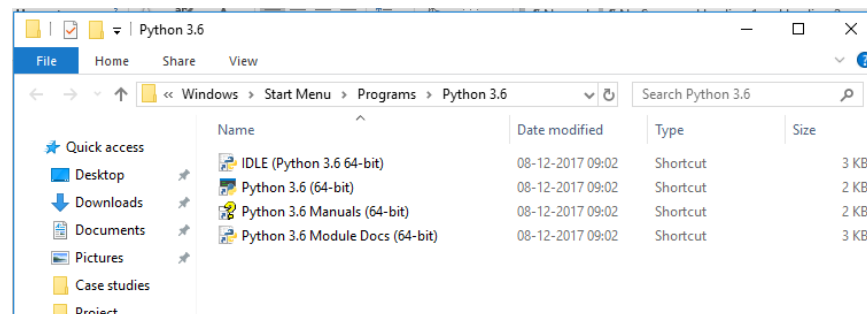
## Installation: Python



Check where Python is installed: It is installed in the

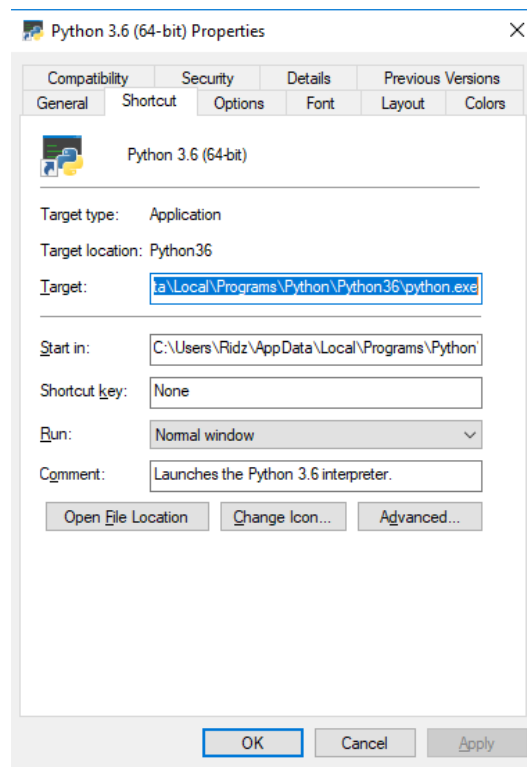
C:\Users\Ridz\AppData\Local\Programs\Python\Python36

Directory for this PC. Check if by searching for “Python” in the windows search. Then right click on Python 3.6 and click Open File Location:

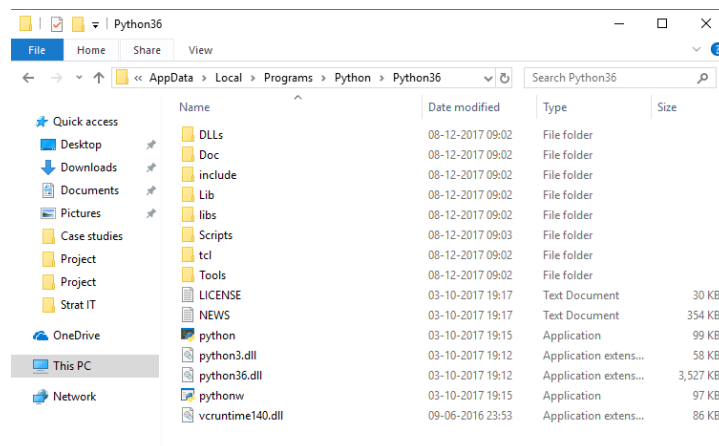


## Installation: Python

This is a shortcut link so we have to click on Python 3.6 and choose Properties:

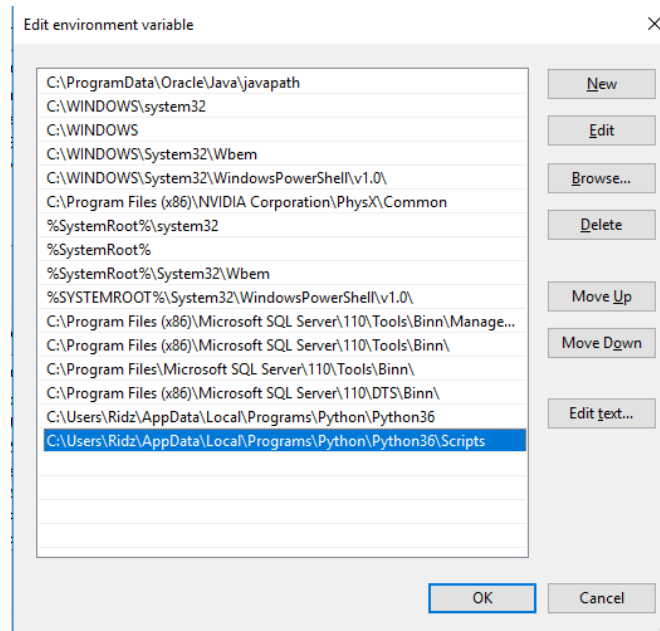


Select and copy the Target path and paste it in the address bar on Windows Explorer:



## Installation: Python

This is the Python directory which we need to put in the environment variables as we did for the MySQL bin directory. Also add the Scripts directory from this folder to the Environmental variables:



Restart Command Prompt:

```
C:\Users\Ridz>python -V
Python 3.6.3

C:\Users\Ridz>
```

Check if pip is installed. Python comes with Pip installed but we need to make sure: `pip -V` or `pip --version`. Pip comes with the Python release and you should be able to access it. It is in the Scripts directory that we added to the environment variables.

### 4.3.2 Django Installation

Install Django version 1.11: Anything above Django version 1.11.3 should be okay to use

#### 1. `pip install --upgrade pip`

```
C:\Users\Ridz>pip install --upgrade pip
Requirement already up-to-date: pip in c:\users\rizd\appdata\local\programs\python\python36\lib\site-packages
C:\Users\Ridz>
```

#### 2. `pip install django~=1.11.3`

```
C:\Users\Ridz>pip install django~=1.11.3
Collecting django~=1.11.3
  Downloading Django-1.11.8-py2.py3-none-any.whl (6.9MB)
    100% |#####| 7.0MB 152kB/s
Collecting pytz (from django~=1.11.3)
  Downloading pytz-2017.3-py2.py3-none-any.whl (511kB)
    100% |#####| 512kB 1.1MB/s
Installing collected packages: pytz, django
Successfully installed django-1.11.8 pytz-2017.3

C:\Users\Ridz>
```

Check if Django is installed correctly:

```
django-admin --version
```

```
C:\Users\Ridz>django-admin --version
1.11.8
```

### 4.3.3 Python and Django Connector

Then install the MySQL and Django connector:

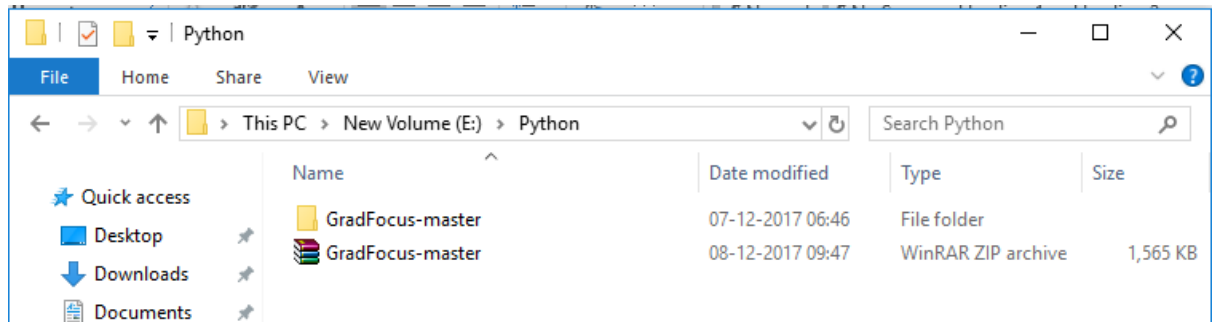
```
pip install django mysqlclient
```

```
C:\Users\Ridz>pip install django mysqlclient
Requirement already satisfied: django in c:\users\rizd\appdata\local\programs\python\python36\lib\site-packages
Collecting mysqlclient
  Downloading mysqlclient-1.3.12-cp36-cp36m-win_amd64.whl (1.3MB)
    100% |#####| 1.3MB 697kB/s
Requirement already satisfied: pytz in c:\users\rizd\appdata\local\programs\python\python36\lib\site-packages (from django)
Installing collected packages: mysqlclient
Successfully installed mysqlclient-1.3.12
```

More resources to help with the above steps if you get stuck:

## 4.4 Repository

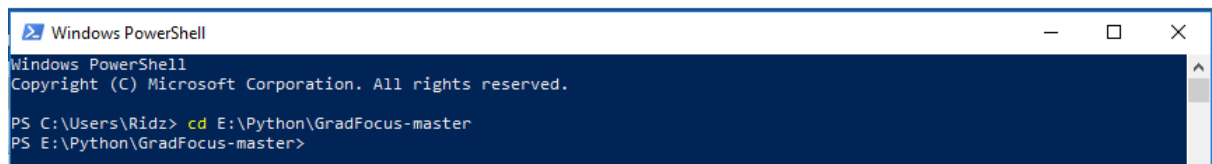
Either use the attached file or you can download the repository from <https://github.com/hadkarAnish/GradFocus>



Now we must navigate to the directory where the Django project “GradSource” is located on our local machine.

The GradFocus-master is the master directory of the repository.

Navigate to this directory from Windows PowerShell or command prompt:



After you have setup both MySQL and Django (with the MySQL connector) then we need to start the server.

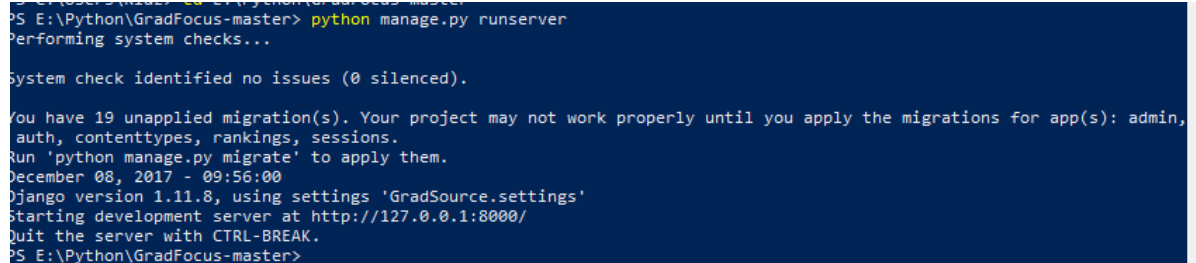


## 4.5 Starting the server

Navigate to the directory where you have the GradFocus repository downloaded:

Start the server:

```
python manage.py runserver
```



```
PS E:\Python\GradFocus-master> python manage.py runserver
Performing system checks...

System check identified no issues (0 silenced).

You have 19 unapplied migration(s). Your project may not work properly until you apply the migrations for app(s): admin,
auth, contenttypes, rankings, sessions.
Run 'python manage.py migrate' to apply them.
December 08, 2017 - 09:56:00
Django version 1.11.8, using settings 'GradSource.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CTRL-BREAK.
PS E:\Python\GradFocus-master>
```

Please note that if all connections to the database have been successfully made, we will get the line “System check identified no issues (0 silenced).”

If the connection is done properly but the GradFocus setup is not done yet, you may see something like:

```
You have 19 unapplied migration(s). Your project may not work
properly until you apply the migrations for app(s): admin, auth,
contenttypes, sessions.
```

```
Run 'python manage.py migrate' to apply them.
```

Ctrl+c to stop the server and return to PowerShell.

We then need to create the database tables and the migrations required for Django.

To do this in the GradSource directory run the commands:

```
python manage.py makemigrations
python manage.py migrate
```

You will need to run the INSERT statements in the database.

The rest of the installation will handle creation of tables and the relationships as well as the Associative Entities.

```
PS E:\Python\GradFocus-master> python manage.py makemigrations
Migrations for 'rankings':
  rankings\migrations\0001_initial.py
    - Create model City
    - Create model Course
    - Create model Matches
    - Create model Program
    - Create model Student
    - Create model University
    - Add field university to program
    - Add field program to matches
    - Add field student to matches
    - Add field program to course
    - Alter unique_together for matches (1 constraint(s))
```

```
PS E:\Python\GradFocus-master> python manage.py migrate
Operations to perform:
  Apply all migrations: admin, auth, contenttypes, rankings, sessions
Running migrations:
  Applying contenttypes.0001_initial... OK
  Applying auth.0001_initial... OK
  Applying admin.0001_initial... OK
  Applying admin.0002_logentry_remove_auto_add... OK
  Applying contenttypes.0002_remove_content_type_name... OK
  Applying auth.0002_alter_permission_name_max_length... OK
  Applying auth.0003_alter_user_email_max_length... OK
  Applying auth.0004_alter_user_username_opts... OK
  Applying auth.0005_alter_user_last_login_null... OK
  Applying auth.0006_require_contenttypes_0002... OK
  Applying auth.0007_alter_validators_add_error_messages... OK
  Applying auth.0008_alter_user_username_max_length... OK
  Applying rankings.0001_initial... OK
  Applying sessions.0001_initial... OK
PS E:\Python\GradFocus-master>
```

Create a admin account for GradFocus, in the python shell type:

```
python manage.py createsuperuser
```

```
PS E:\Python\GradFocus-master> python manage.py createsuperuser
Username (leave blank to use 'ridz'): admin2
Email address: admin2@admin2.com
Password:
Password (again):
Error: Your passwords didn't match.
Password:
Password (again):
Superuser created successfully.
PS E:\Python\GradFocus-master>
```

We have created user with name admin2 and password as pass1234

If you want to verify whether the database tables have been created, check in MySQL:

After logging into the database, use the command:

```
use anish_project;
```

## Installation: Server

Then use:

```
show tables;
```

```
rankings_session  
rankings_city  
rankings_course  
rankings_matches  
rankings_program  
rankings_student  
rankings_university
```

Then we start the server with this command:

```
python manage.py runserver
```

```
Superuser created successfully.  
PS E:\Python\GradFocus-master> python manage.py runserver  
Performing system checks...  
  
System check identified no issues (0 silenced).  
December 08, 2017 - 10:55:46  
Django version 1.11.8, using settings 'GradSource.settings'  
Starting development server at http://127.0.0.1:8000/  
Quit the server with CTRL-BREAK.  
[08/Dec/2017 10:55:48] "GET /admin/rankings/university/add/ HTTP/1.1" 200 5900
```

Then go to your browser and go the server at:

```
127.0.0.1:8000
```

You will be taken to the login page. Please user the login you just created using the createsuperuser command to logon to the website.

## 5. System Functions

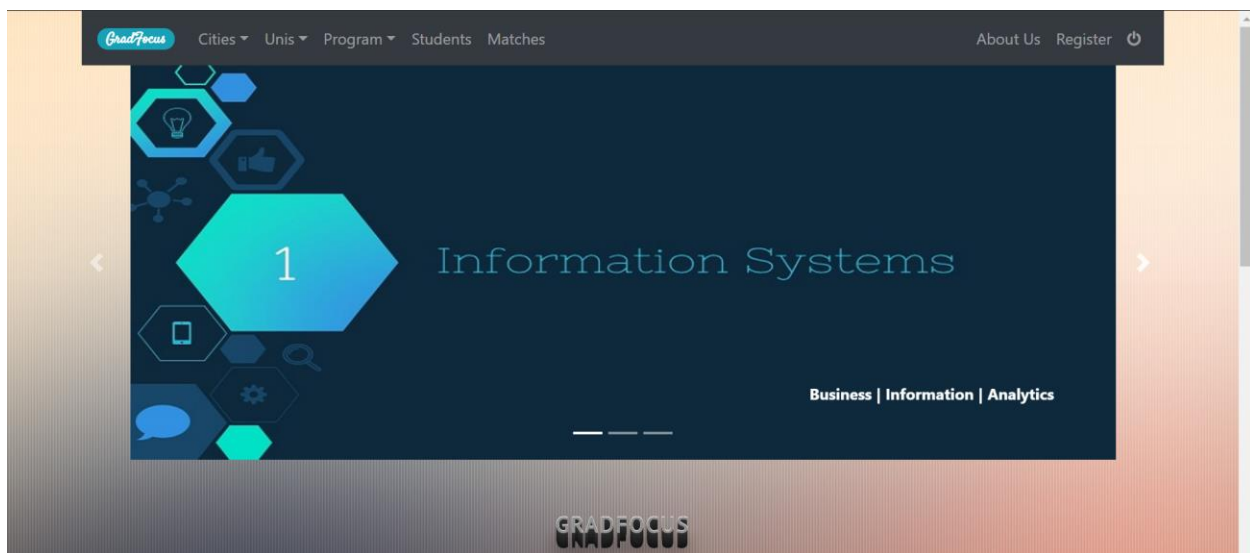
## System Functions

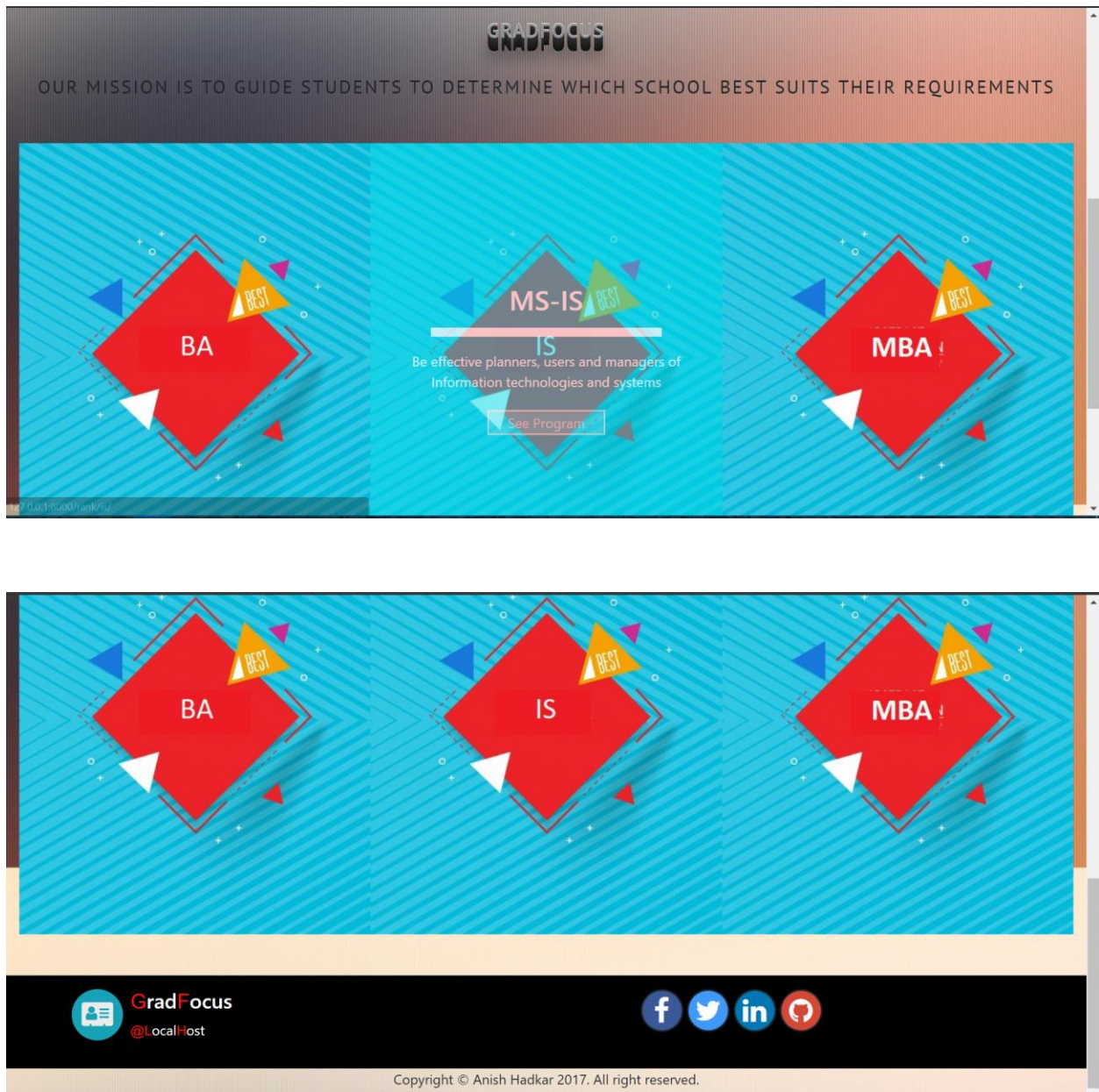
The main function of GradFocus website is to provide a rankings system for the Information Systems program, the Business Analytics program and the MBA program for universities in the US.

We should also be able to view the data of cities that have the universities and we can also add new cities to the database. Each university has different programs that it offers, and each program has a set of unique courses. This data is provided by the website. The students that want to access the website have to pay for access to the website upon which their account will be validated and access to the entire website will be provided. The consultants of GradFocus will then work on finding the best matches for these students and then will come up with a list of universities that are suggested for the student. This data will then be added to the website for other students to view as well.

### 5.1 Website Index

This has the links to all the Cities with universities, the universities and the programs offered by the different universities. The index also has links to the top programs for IS, BA and MBA. The links for the students and the matches for the students with the programs is also displayed on the main page.





The footer on the index has information about the website through the address card and also has the social links to various websites and the GitHub link to the code for GradFocus website.




### 5.1.1 City Window

The city webpage has the information for the city that is selected from the dropdown on the main page.

The City information consists for the average living expenses, the minimum and maximum temperature:

| Table name | Column name    | Column type          | Column Size     | Column Description   |
|------------|----------------|----------------------|-----------------|--|
| City       | id             | Integer              | default         | Primary Key  |
| City       | name           | CharField            | max length = 50 | The name of the city   |
| City       | livingExpense  | PositiveIntegerField | default         | The living expenses in this City                               |
| City       | minTemperature | FloatField           | default         | The minimum temperature in this University.<br>Max value = 212 |
| City       | maxTemperature | FloatField           | default         | The maximum temperature in this University.<br>Max value = 212 |
| City       | logo           | FileField            | default         | The logo of the university                                     |

GradFocus
Register
Logout



## College Park

Temperature range  
1.0 : 11.0

Expenses  
1234

Update City
Delete

+ Add New City

Add University

Copy
Excel
PDF
Column visibility

Search:

| University | Type    | Actions |
|------------|---------|---------|
| UMD        | Private |         |

Showing 1 to 1 of 1 entries

Previous
1
Next

City add webpage:

This field is required.

**Name:**

This field is required.

**LivingExpense:**

This field is required.

**MinTemperature:**

This field is required.

**MaxTemperature:**

**Logo:**  No file chosen

City update webpage:

This field is required.

**Name:**

This field is required.

**LivingExpense:**

This field is required.

**MinTemperature:**

This field is required.

**MaxTemperature:**

**Logo:** Currently: [college\\_park\\_rGBCERe.jpg](#)   
Change:  No file chosen



The City webpage also has the universities in the that city listed on the right of the page.

You can add, update and delete cities from this page. You can also add, update and delete universities that are in this City from this webpage.

You need to login to see this link and webpage.

### 5.1.2 University Window


The University webpage is selected from the index page of the website from the navigation bar dropdown.

The University webpage has the information about the University and the programs offered by this University. The university information consists of the name of the university along with the type of university – Public or private.

| Table name | Column name | Column type | Column Size     | Column Description                             |
|------------|-------------|-------------|-----------------|--|
| University | id          | Integer     | Default         | Primary Key                                    |
| University | name        | CharField   | max length = 50 | Foreign Key from City which has the university |
| University | type        | CharField   | max length = 50 | Type of University, Public or Private          |
| University | logo        | FileField   | Default         | Logo of the university                         |
| University | city        | ForeignKey  |                 | Foreign Key from City which has the university |

The university webpage has the information about the program in this university listed on the right-hand side. You can add, update and delete Universities from this page and add, update and delete the corresponding university's programs.

GradFocus
Register
Logout



UMD

Type: Private

Update University Delete

+ Add New University

Add Program

All Programs
Copy Excel PDF Column visibility
Search:

| Program | Rank | Accepted GRE Score | Accepted GMAT Score | Accepted TOEFL Score | Minimum CGPA Required | Fee Per Credit | Avg Work Exp of Admitted Student | Actions       |
|---------|------|--------------------|---------------------|----------------------|-----------------------|----------------|----------------------------------|---------------|
| BA      | 1    | None               | 650                 | 99                   | 2.0                   | 190            | 0.0                              | Update Delete |
| IS      | 1    | 312                | None                | 120                  | 3.0                   | 1900           | 1.0                              | Update Delete |

Showing 1 to 2 of 2 entries
Previous 1 Next

University update webpage:

You need to login to see this link and webpage.

### 5.1.3 Program Window

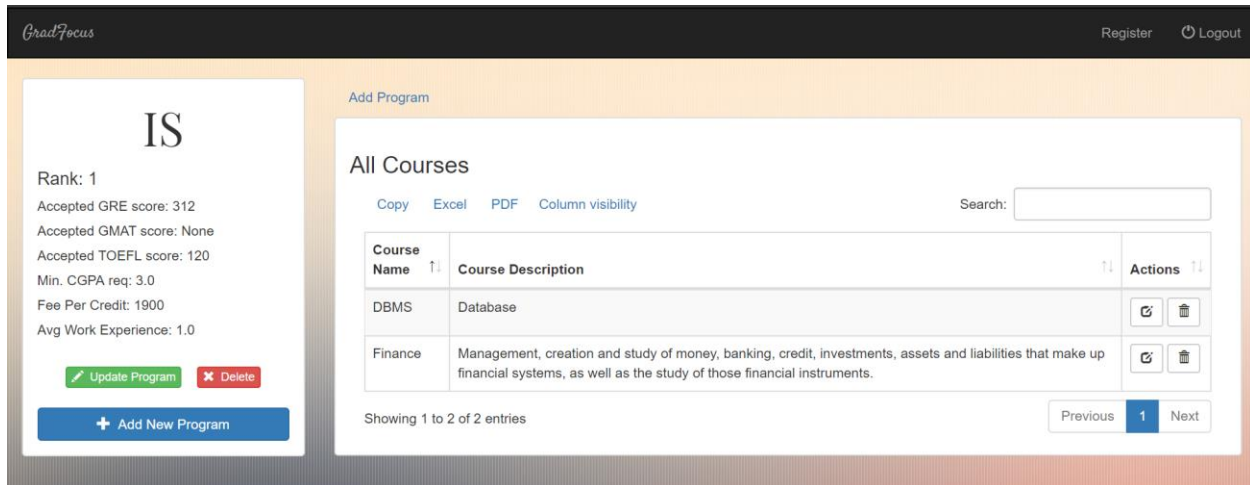
The program webpage is selected from the index page from the navigation bar dropdown.

The program webpage has the information about the Program and the courses offered by the University. The program information consists of the program name, rank of the program and other information.

| Table name | Column name  | Column type          | Column Size     | Column Description  |
|------------|--------------|----------------------|-----------------|---|
| Program    | id           | Integer              | Default         | Primary key   |
| Program    | university   | ForeignKey           |                 | Foreign Key from University which has this program                                |
| Program    | pName        | CharField            | max length = 50 | Name of the program   |
| Program    | rank         | PositiveIntegerField | Default         | Rank of this program in the rankings  |
| Program    | acceptedGRE  | PositiveIntegerField | Default         | Minimum accepted student GRE score<br>Max = 340, can be null                      |
| Program    | acceptedGMAT | PositiveIntegerField | Default         | Minimum accepted student GMAT score<br>Max = 800, can be null                     |
| Program    | acceptedGMAT | PositiveIntegerField | Default         | Minimum accepted student TOEFL score<br>Max = 120                                 |
| Program    | minCGPA      | FloatField           | Default         | Minimum accepted student CGPA<br>Can be NULL                                      |
| Program    | feePerCredit | PositiveIntegerField | Default         | Fees per credit for the program.  |
| Program    | avgWorkExp   | FloatField           | Default         | Average work experience of currently enrolled students.<br>Max = 100, can be NULL |

## System Functions

The programs webpage has the courses offered by the program on the right side of the webpage. You can add, update and delete programs from this webpage. You can also add, update and delete courses from this webpage.

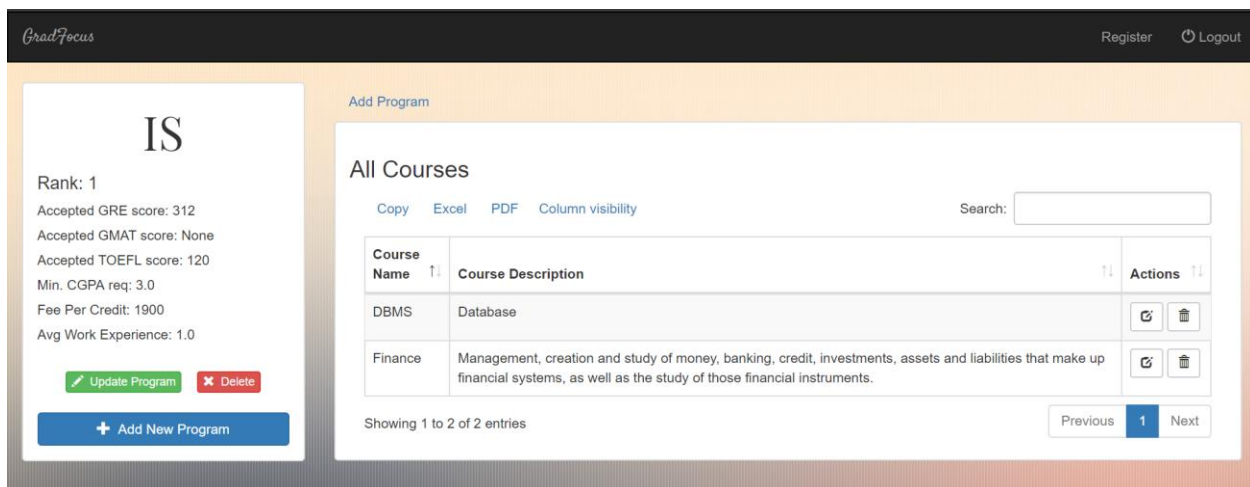


You need to login to see this webpage.

### 5.1.4 Course Table

The course details are shown on the programs page on the right side. This includes the course name and the course description.

| Table name | Column name       | Column type | Column Size       | Column Description                             |
|------------|-------------------|-------------|-------------------|--|
| Course     | id                | Integer     | Default           | Primary key                                    |
| Course     | program           | ForeignKey  |                   | Foreign Key from Program which has this course |
| Course     | courseName        | CharField   | max length = 100  | Name of the course                             |
| Course     | courseDescription | CharField   | max length = 1000 | Description of the course                      |



Course update webpage:

• This field is required.

CourseName:

• This field is required.

CourseDescription:

Submit

The course table doesn't have a dedicated page but can only be seen from the program page. This needs a validated login to view.

### 5.1.5 Student Window

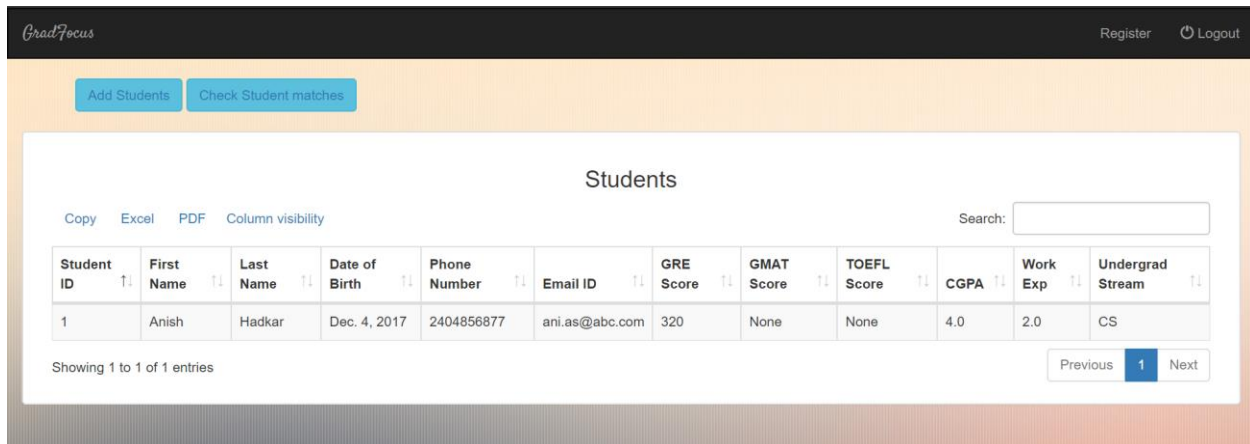
The student webpage can be accessed through the link in the index page navigation bar.

The student webpage has the information about the student including the student name, contact information and his grades and marks.

| Table name | Column name      | Column type          | Column Size      | Column Description                                    |
|------------|------------------|----------------------|------------------|---|
| Student    | id               | Integer              | Default          | Primary Key   |
| Student    | sFirstName       | CharField            | max length = 50  | First name of the student                             |
| Student    | sLastName        | CharField            | max length = 100 | Last name of the student                              |
| Student    | sDateOfBirth     | DateField            | Default          | Date of birth of the Student                          |
| Student    | sPhoneNumber     | PositiveIntegerField | Default          | Phone number of the student<br>Can be NULL            |
| Student    | sEmailId         | EmailField           | Default          | Email ID of the student                               |
| Student    | sGRE             | PositiveIntegerField | Default          | GRE score of the student<br>Max = 340, can be NULL    |
| Student    | sGMAT            | PositiveIntegerField | Default          | GMAT score of the student<br>Max = 800, can be NULL   |
| Student    | sTOEFL           | PositiveIntegerField | Default          | TOEFL score of the student<br>Max = 120, can be NULL  |
| Student    | sCGPA            | FloatField           | Default          | CGPA of the student                                   |
| Student    | sWorkExp         | FloatField           | Default          | Work experience of students<br>Max = 100, can be NULL |
| Student    | sUnderGradStream | CharField            | max length = 200 | Under Graduate Stream of the Student                  |

New students can be added from this webpage. Student matches for all students can be accessed from this webpage.

## System Functions



This page is accessible without a validated login on the website.

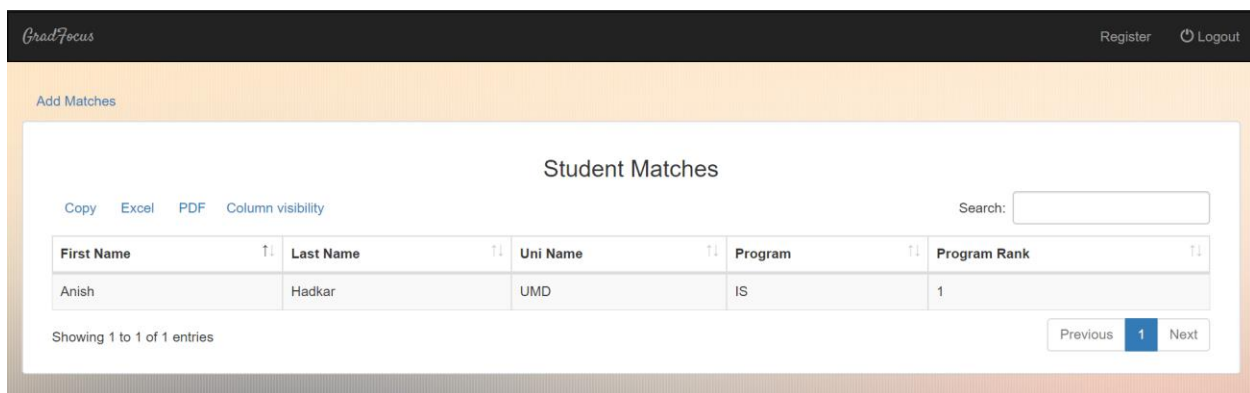
### 5.1.6 Matches Window

The Matches webpage can be accessed from the index of the website through the navigation bar.

The Matches window has information about the programs that the GradFocus consultants have matched for the students.

| Table name | Column name | Column type | Column Size | Column Description                            |
|------------|-------------|-------------|-------------|---|
| Matches    | id          | Integer     | Default     | Primary Key                                   |
| Matches    | program     | ForeignKey  | Default     | Foreign Key from Program which has this Match |
| Matches    | student     | ForeignKey  | Default     | Foreign Key from Student which has this Match |

The program and the student information in the Matches table is a composite primary key and is unique together. New matches can be added to the table using the “Add Matches” button.

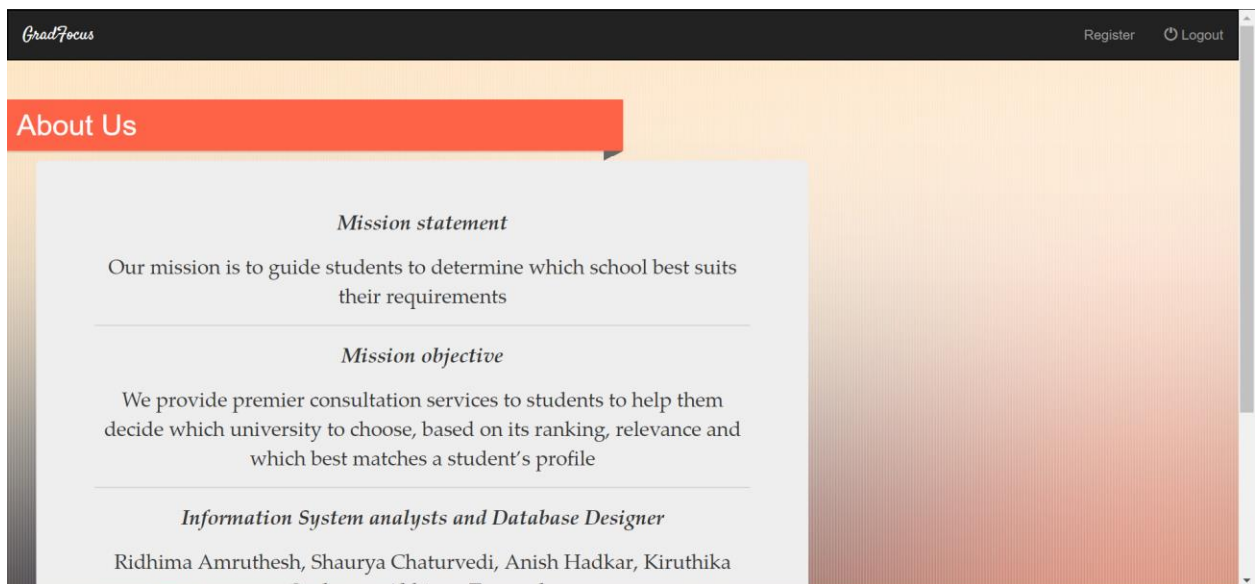
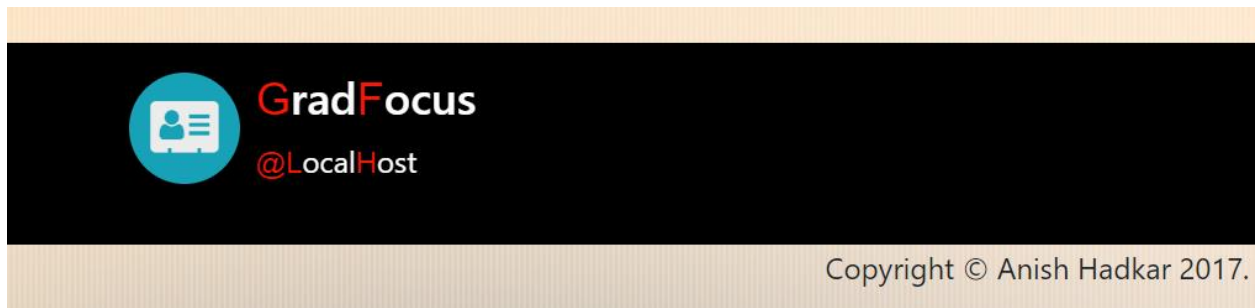


This page is accessible without a validated login on the website.

### 5.1.7 About Link

The about link gives the details about the GradFocus project and the people behind the project. The About Us page can also be accessed by clicking the Address Card on the index page footer:

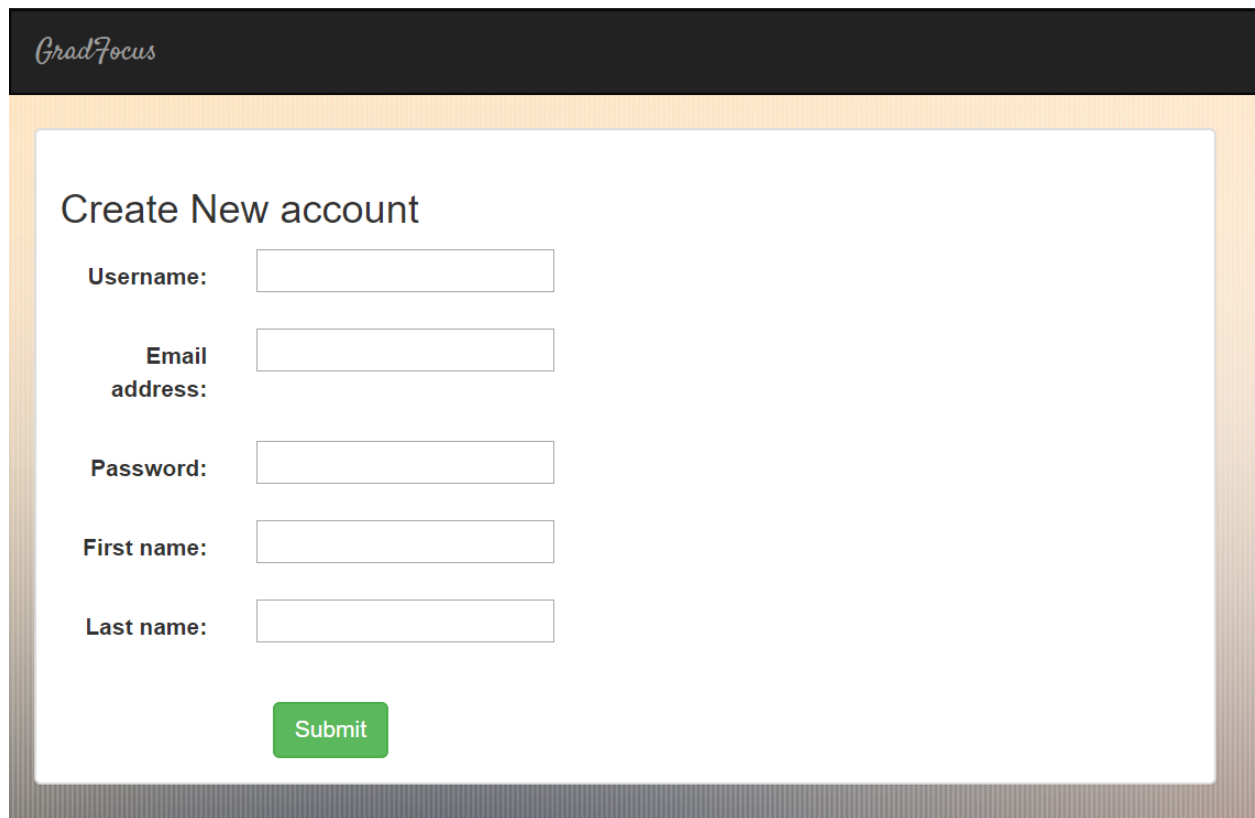
Access by clicking on the Address Card circle.



The About us webpage can be accessed without logging on the website.

### 5.1.8 Register Window

The Register webpage can be accessed from the index of the website through the navigation bar. The register webpage has the username, password and email ID. The GradFocus consultants should set the priority and accesses for each new user.



The image shows a web form titled "Create New account" with a dark header bar containing the "GradFocus" logo. The form is set against a light orange background. It includes five input fields: "Username:", "Email address:", "Password:", "First name:", and "Last name:". A green "Submit" button is located at the bottom of the form.

Create New account

Username:

Email address:

Password:

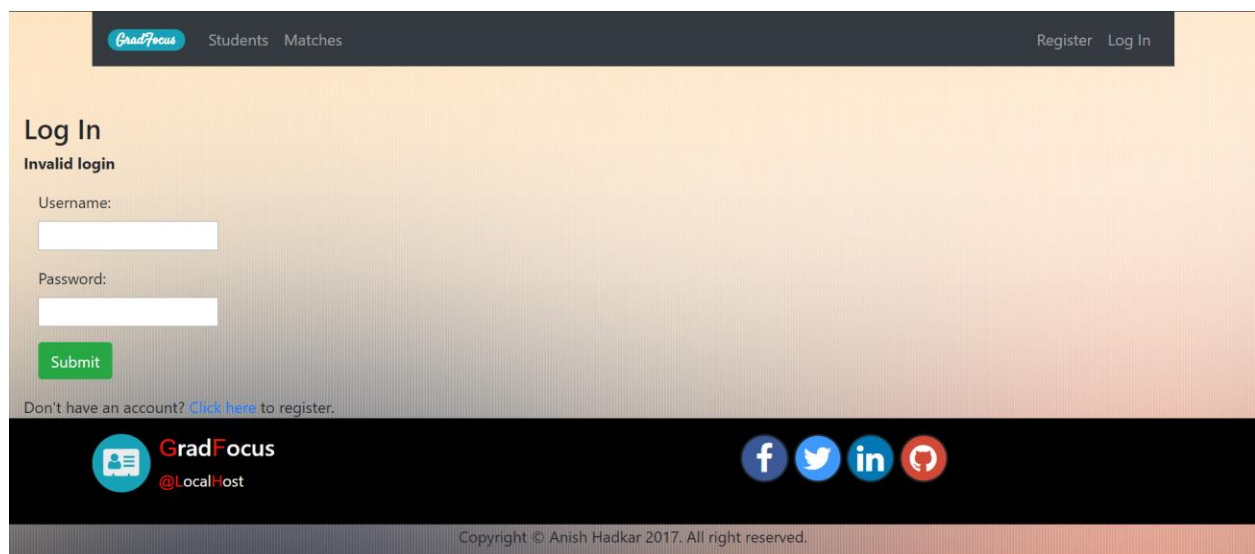
First name:

Last name:

#### 5.1.9 Login/Login

The login window is shown when the user is not logged in and tries to access a webpage that needs a logged in user. The logout button is shown when the user is logged into the website.

Login:



The image shows a web page with a dark header bar containing the "GradFocus" logo, "Students", "Matches", "Register", and "Log In" links. The main content area has a light orange background and displays a "Log In" form. The form includes a message "Invalid login", input fields for "Username:" and "Password:", and a green "Submit" button. Below the form, there is a link to register: "Don't have an account? [Click here](#) to register." The footer bar is dark and contains the "GradFocus" logo, "@LocalHost", and social media icons for Facebook, Twitter, LinkedIn, and YouTube. The copyright notice "Copyright © Anish Hadkar 2017. All right reserved." is at the bottom.

GradFocus Students Matches Register Log In

Log In

Invalid login

Username:

Password:

Don't have an account? [Click here](#) to register.

GradFocus @LocalHost

Facebook Twitter LinkedIn YouTube

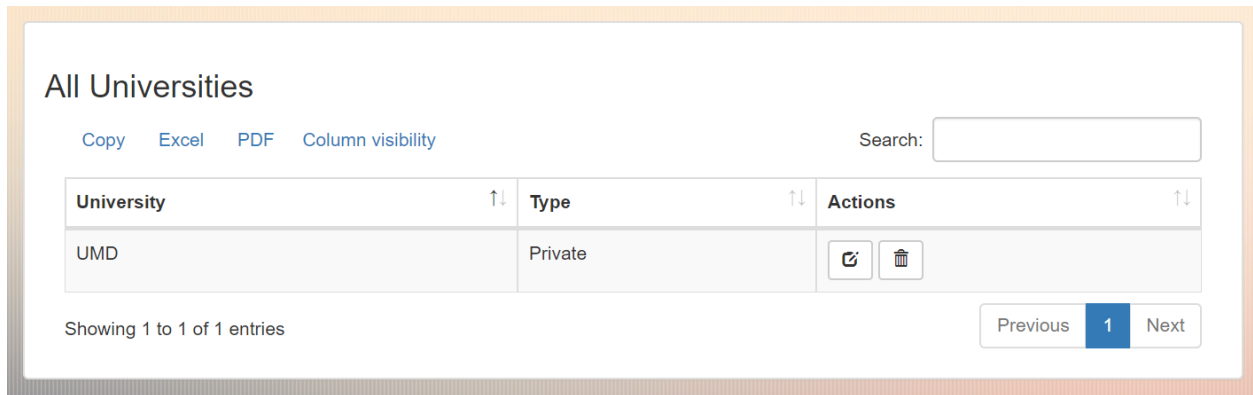
Copyright © Anish Hadkar 2017. All right reserved.

Logout:



#### 5.1.10 Data tables

Data tables have been added to the City, University, Program, Student and Matches webpages.



Data can be downloaded from these in the form of Excel sheets, PDFs or can simply be copied to the clipboard. A search function is also provided to search for data in the data tables. Update and delete actions are provided for rows in the data tables on the City, University and Program webpages.



## 6. Appendix

## Appendix

### 6.1 Appendix A: Glossary

IS = Information Systems

BA = Business Analytics

MBA = Master of Business Administration

Django = A high level Python Web Framework that helps with connecting the backend databases to the front-end HTML by providing access to Python code inside the HTML webpages. It is free and open source.

Python = A high level language used for general purpose programming. It is open source.

MySQL = An open source relational database management system.

### 6.2 Appendix B: Issues list

6.2.1 Adding new universities, program, courses, students and matches need Django admin login.

6.2.2 Update button does not send data to the update form.