

Prelim Skills Exam	
Name: Quebral, John Brian F.	Instructor: Engr. Alonica Villanueva
Course & Section: CPE 028 – CPE41S1	Date: October 9, 2021

A. Creating Virtual Environment

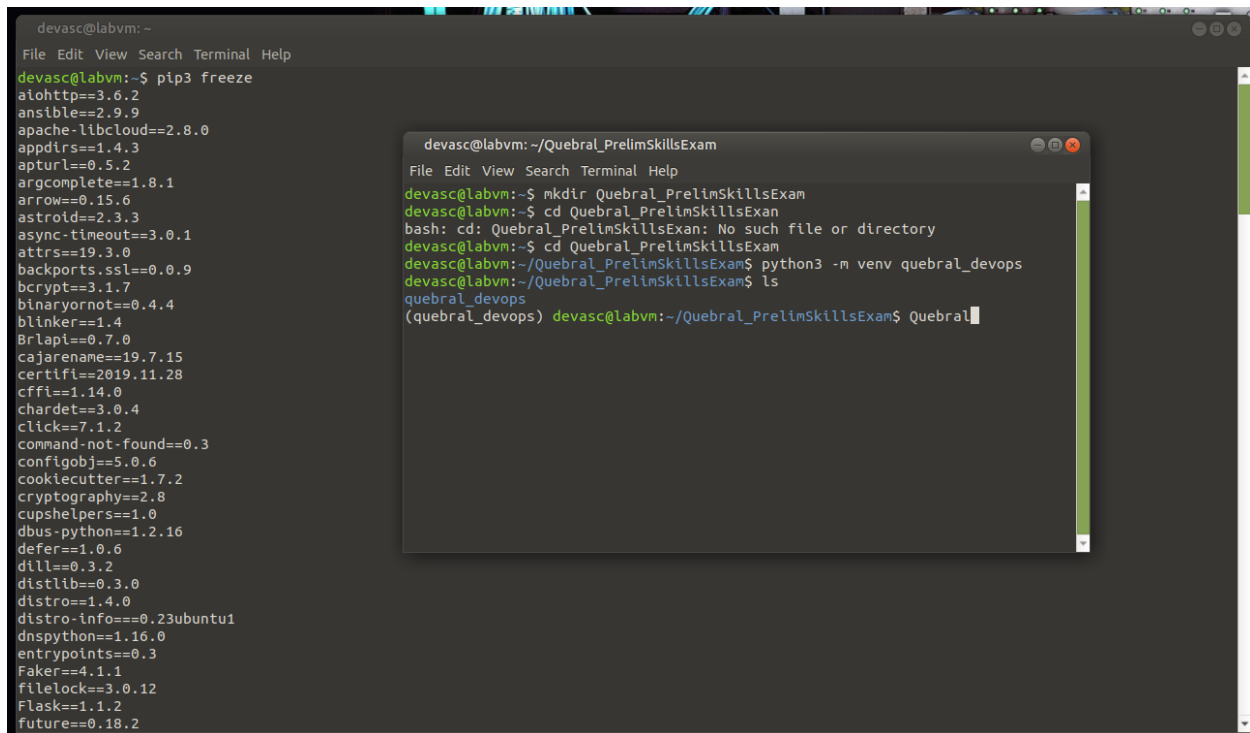
a. Creating the Python 3 Virtual Environment.

```
devasc@labvm:~/Quebral_PrelimSkillsExam$ python3 -m venv quebral_devops
devasc@labvm:~/Quebral_PrelimSkillsExam$ Quebral
```

b. Activate the virtual environment

```
devasc@labvm:~/Quebral_PrelimSkillsExam$ ls
quebral_devops
devasc@labvm:~/Quebral_PrelimSkillsExam$ source quebral_devops/bin/activate
(quebral_devops) devasc@labvm:~/Quebral_PrelimSkillsExam$ Quebral
```

c. Execute a command to check what packages are installed in the system environment.



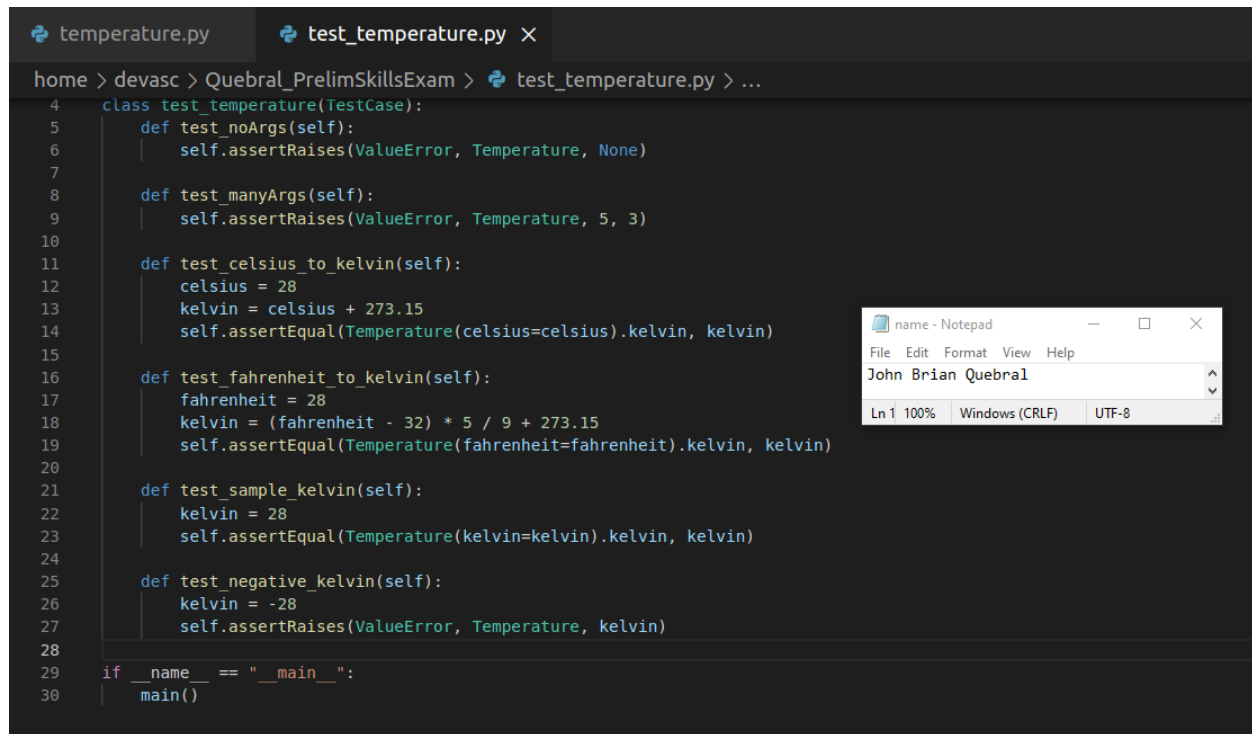
```
devasc@labvm:~$ pip3 freeze
aiohttp==3.6.2
ansible==2.9.9
apache-libcloud==2.8.0
appdirs==1.4.3
apturl==0.5.2
argcomplete==1.8.1
arrow==0.15.6
astroid==2.3.3
async-timeout==3.0.1
attrs==19.3.0
backports.ssl==0.0.9
bcrypt==3.1.7
binaryornot==0.4.4
blinker==1.4
Brlapi==0.7.0
cajarename==19.7.15
certifi==2019.11.28
cffi==1.14.0
chardet==3.0.4
click==7.1.2
command-not-found==0.3
configobj==5.0.6
cookiecutter==1.7.2
cryptography==2.8
cupshelpers==1.0
dbus-python==1.2.16
defer==1.0.6
dill==0.3.2
distlib==0.3.0
distro==1.4.0
distro-info==0.23ubuntu1
dnspython==1.16.0
entrypoints==0.3
Faker==4.1.1
filelock==3.0.12
Flask==1.1.2
future==0.18.2
```

- d. Create requirements.txt and, then execute a command to install the packages as stated in the requirements.txt (Note: Install at least four (4) packages)

```
(quebral_devops) devasc@labvm:~/Quebral_PrelimSkillsExam$ vim requirements.txt
(quebral_devops) devasc@labvm:~/Quebral_PrelimSkillsExam$ cat requirements.txt
xlwt==1.3.0
xmldict==0.12.0
yamllint==1.23.0
yarl==1.4.2
(quebral_devops) devasc@labvm:~/Quebral_PrelimSkillsExam$ pip3 install -r requirements.txt
Collecting xlwt==1.3.0
  Using cached xlwt-1.3.0-py2.py3-none-any.whl (99 kB)
Collecting xmldict==0.12.0
  Using cached xmldict-0.12.0-py2.py3-none-any.whl (9.2 kB)
Collecting yamllint==1.23.0
  Using cached yamllint-1.23.0-py2.py3-none-any.whl (58 kB)
Collecting yarl==1.4.2
  Using cached yarl-1.4.2-cp38-cp38-manylinux1_x86_64.whl (253 kB)
Collecting zipp==1.0.0
  Using cached zipp-1.0.0-py2.py3-none-any.whl (4.1 kB)
Collecting pathspec>=0.5.3
  Using cached pathspec-0.9.0-py2.py3-none-any.whl (31 kB)
Collecting pyyaml
  Using cached PyYAML-5.4.1-cp38-cp38-manylinux1_x86_64.whl (662 kB)
Collecting multidict>=4.0
  Using cached multidict-5.2.0-cp38-cp38-manylinux_2_5_x86_64.manylinux1_x86_64.manylinux2_12_x86_64.manylinux2010_x86_64.whl (187 kB)
Collecting idna>=2.0
  Using cached idna-3.2-py3-none-any.whl (59 kB)
Collecting more-itertools
  Using cached more-itertools-8.10.0-py3-none-any.whl (51 kB)
Installing collected packages: xlwt, xmldict, pathspec, pyyaml, yamllint, multidict, idna, yarl, more-itertools, zipp
Successfully installed idna-3.2 more-itertools-8.10.0 multidict-5.2.0 pathspec-0.9.0 pyyaml-5.4.1 xlwt-1.3.0 xmldict-0.12.0 yamllint-1.23.0 yarl-1.4.2 zipp-1.0.0
(quebral_devops) devasc@labvm:~/Quebral_PrelimSkillsExam$ Quebral
```

B. Create a Python Unit Test

- a. Create at least 4 test cases of the python unit test to test the given python script.



The screenshot shows a code editor with two tabs: 'temperature.py' and 'test_temperature.py'. The 'test_temperature.py' tab is active, displaying a Python unit test script. The script defines a class 'test_temperature' that inherits from 'TestCase' and includes several test methods: 'test_noArgs', 'test_manyArgs', 'test_celsius_to_kelvin', 'test_fahrenheit_to_kelvin', 'test_sample_kelvin', and 'test_negative_kelvin'. The script also includes a main function that runs the tests. A Notepad window is open in the background, showing the name 'John Brian Quebral' and the file encoding 'UTF-8'.

```
4 class test_temperature(TestCase):
5     def test_noArgs(self):
6         self.assertRaises(ValueError, Temperature, None)
7
8     def test_manyArgs(self):
9         self.assertRaises(ValueError, Temperature, 5, 3)
10
11     def test_celsius_to_kelvin(self):
12         celsius = 28
13         kelvin = celsius + 273.15
14         self.assertEqual(Temperature(celsius=celsius).kelvin, kelvin)
15
16     def test_fahrenheit_to_kelvin(self):
17         fahrenheit = 28
18         kelvin = (fahrenheit - 32) * 5 / 9 + 273.15
19         self.assertEqual(Temperature(fahrenheit=fahrenheit).kelvin, kelvin)
20
21     def test_sample_kelvin(self):
22         kelvin = 28
23         self.assertEqual(Temperature(kelvin=kelvin).kelvin, kelvin)
24
25     def test_negative_kelvin(self):
26         kelvin = -28
27         self.assertRaises(ValueError, Temperature, kelvin)
28
29 if __name__ == "__main__":
30     main()
```

Python Script

```
temperature.py × test_temperature.py
home > devasc > Quebral_PrelimSkillsExam > temperature.py > Temperature > __str__
1 class Temperature:
2     def __init__(self, kelvin=None, celsius=None, fahrenheit=None):
3         values = [x for x in [kelvin, celsius, fahrenheit] if x]
4
5         if len(values) < 1:
6             raise ValueError('Need argument')
7
8         if len(values) > 1:
9             raise ValueError('Only one argument')
10
11         if celsius is not None:
12             self.kelvin = celsius + 273.15
13         elif fahrenheit is not None:
14             self.kelvin = (fahrenheit - 32) * 5 / 9 + 273.15
15         else:
16             self.kelvin = kelvin
17
18         if self.kelvin < 0:
19             raise ValueError('Temperature in Kelvin cannot be negative')
20
21     def __str__(self):
22         return f'Temperature - {self.kelvin} Kelvins'
```

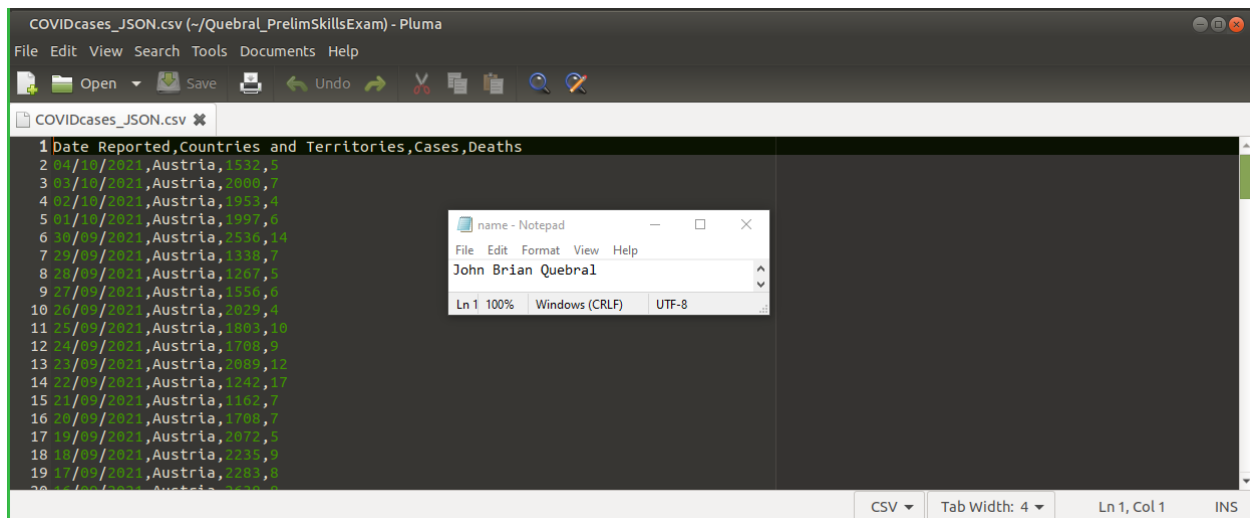
Unit Test Case (6 Cases)

C. Parsing Different Data Types with Python

- Parse the given JSON / XML file for COVID cases. Retrieve the date reported, countries and territories, number of cases, and deaths. Create a new CSV file and then save the retrieved data to the CSV file.

```
temperature.py test_temperature.py parse_json_to_csv.py ×
home > devasc > Quebral_PrelimSkillsExam > parse_json_to_csv.py > ...
1 import json
2 import csv
3 from os import write
4
5 #Opening JSON File
6 json_path = '/home/devasc/Quebral_PrelimSkillsExam/covid_cases.json'
7 with open(json_path) as file_input:
8     COVID_cases = json.loads(file_input.read())
9
10 csv_path = '/home/devasc/Quebral_PrelimSkillsExam/COVIDcases_JSON.csv'
11 with open(csv_path, 'w') as file_output:
12     writer = csv.writer(file_output)
13     writer.writerow(['Date Reported', 'Countries and Territories', 'Cases', 'Deaths'])
14
15     for record in COVID_cases['records']:
16         writer.writerow([record['dateRep'],
17                         record['countriesAndTerritories'],
18                         record['cases'],
19                         record['deaths']])
```

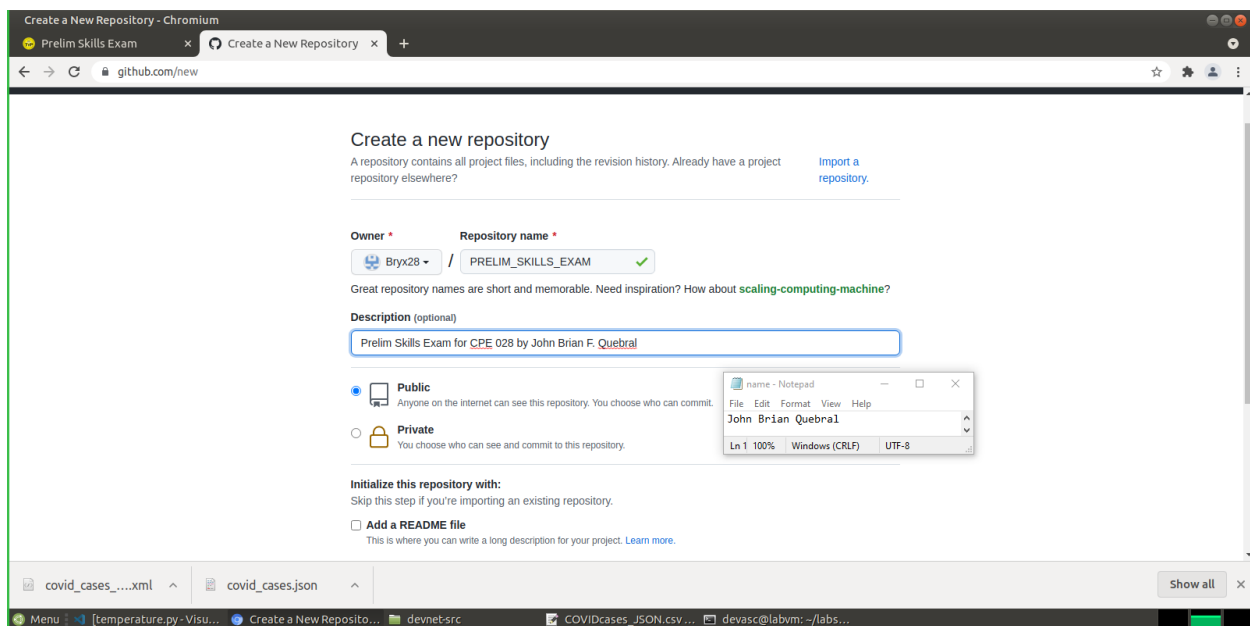
Python File for Loading the Data from JSON to CSV



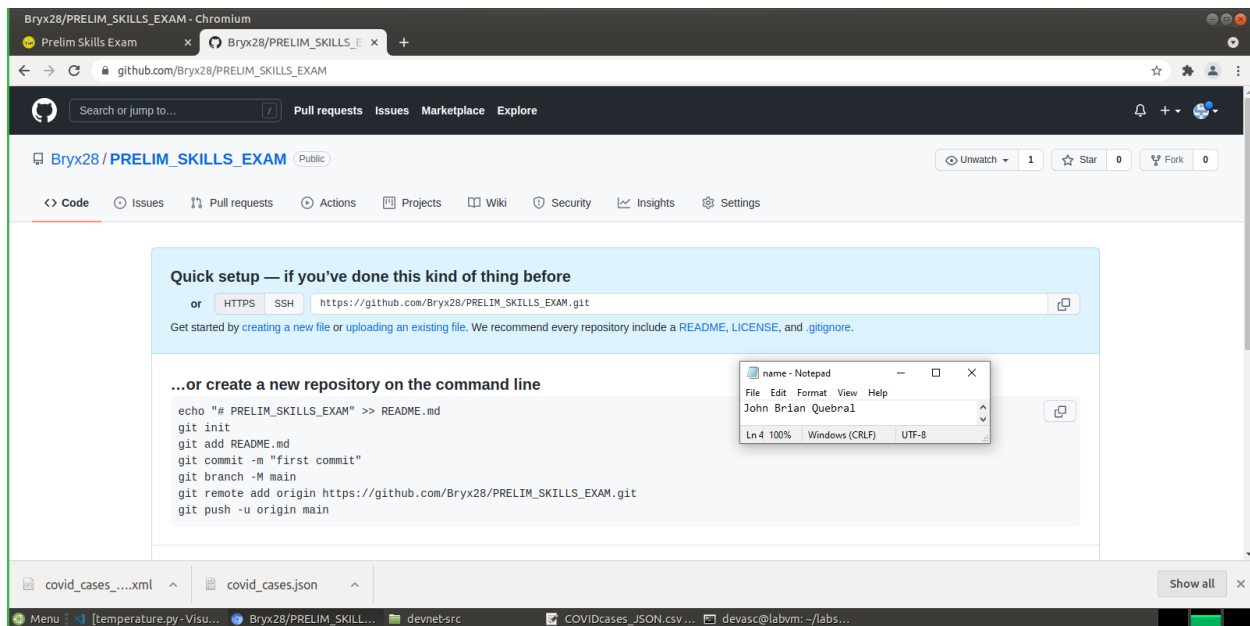
CSV Files of Reported COVID Cases

D. Git Commands

- Create a repository PRELIM_SKILLS_EXAM to your GITHUB account.



Creating the Repository PRELIM_SKILLS_EXAM in my GITHUB Account



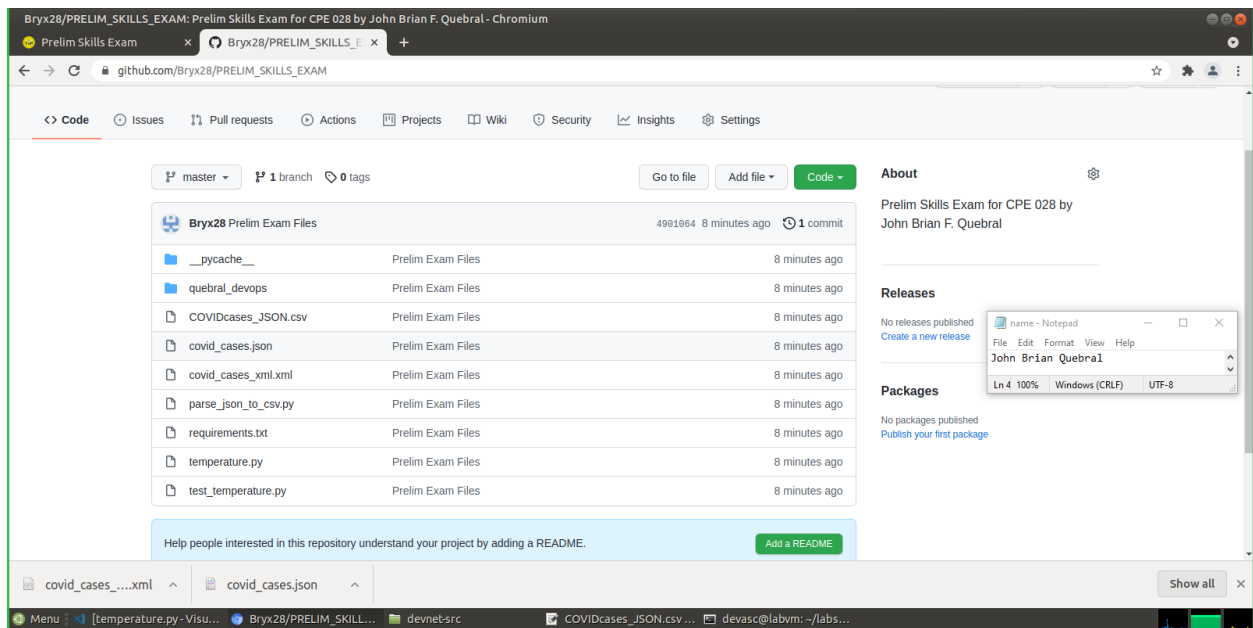
Created the Repository PrelimSkillExam

b. Upload your files using the GIT command. Make sure to include the necessary comments.

```
devasc@labvm:~/labs/devnet-src/Quebral_PrelimSkillsExam$ git init
Reinitialized existing Git repository in /home/devasc/labs/devnet-src/Quebral_PrelimSkillsExam/.git/
devasc@labvm:~/labs/devnet-src/Quebral_PrelimSkillsExam$ git add .
devasc@labvm:~/labs/devnet-src/Quebral_PrelimSkillsExam$ git remote add origin https://github.com/Bryx28/PRELIM_SKILLS_EXAM.git
devasc@labvm:~/labs/devnet-src/Quebral_PrelimSkillsExam$ git remote -v
origin https://github.com/Bryx28/PRELIM_SKILLS_EXAM.git (fetch)
origin https://github.com/Bryx28/PRELIM_SKILLS_EXAM.git (push)
devasc@labvm:~/labs/devnet-src/Quebral_PrelimSkillsExam$ git commit -m "Prelim Skills Exam Files"
On branch master
nothing to commit, working tree clean
devasc@labvm:~/labs/devnet-src/Quebral_PrelimSkillsExam$
```

```
devasc@labvm:~/labs/devnet-src/Quebral_PrelimSkillsExam$ git push -u origin master
Username for 'https://github.com': Bryx28
Password for 'https://Bryx28@github.com':
Enumerating objects: 838, done.
Counting objects: 100% (838/838), done.
Delta compression using up to 2 threads
Compressing objects: 100% (812/812), done.
Writing objects: 100% (838/838), 5.06 MiB | 2.97 MiB/s, done.
Total 838 (delta 60), reused 0 (delta 0)
remote: Resolving deltas: 100% (60/60), done.
To https://github.com/Bryx28/PRELIM_SKILLS_EXAM.git
 * [new branch] master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.
devasc@labvm:~/labs/devnet-src/Quebral_PrelimSkillsExam$
```

Using the necessary Git commands to upload the files to the GitHub Repository



Verification of the Files if they are uploaded.