INTERNATIONAL SPACE STATION (ISS) LOCATION AND ASTRONAUT DETAILS

-Submitted for GDG 2CC

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Abstract:

This project is based on finding the details of the astronauts who are present on the international space station (ISS). Also, it shows the location of the ISS on the world map at the present time

Introduction:

The goal of this project is to implement a system using python. This system must display real-time location of the International Space Station on the world map and also display the details of the astronauts present on it.

Concept:

The complete details about the International Space Station are confidential for security reasons. However, NASA has provided some APIs to allows us to get some bits of data from their servers. We need two resources to implement this project. They are:

- Names of astronauts currently in the ISS.
- Current position of the ISS overhead earth's map, both of which have been made available as JSON API's.

We achieve this information through APIs which can be easily used with Python implementation. The APIs are:

- http://api.open-notify.org/astros.json (Astronaut Details)
- http://api.open-notify.org/iss-now.json (ISS Location)

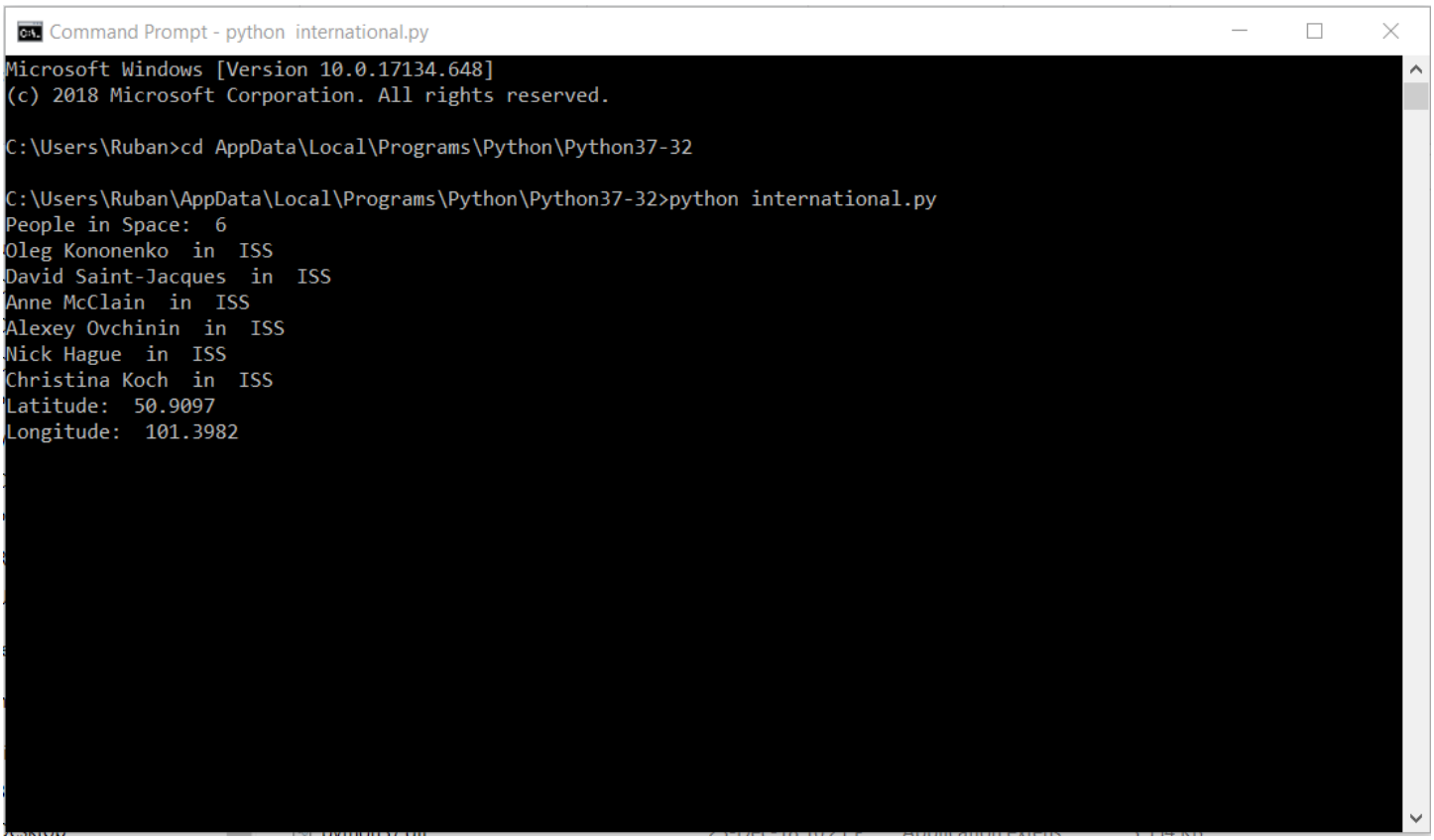
Code:

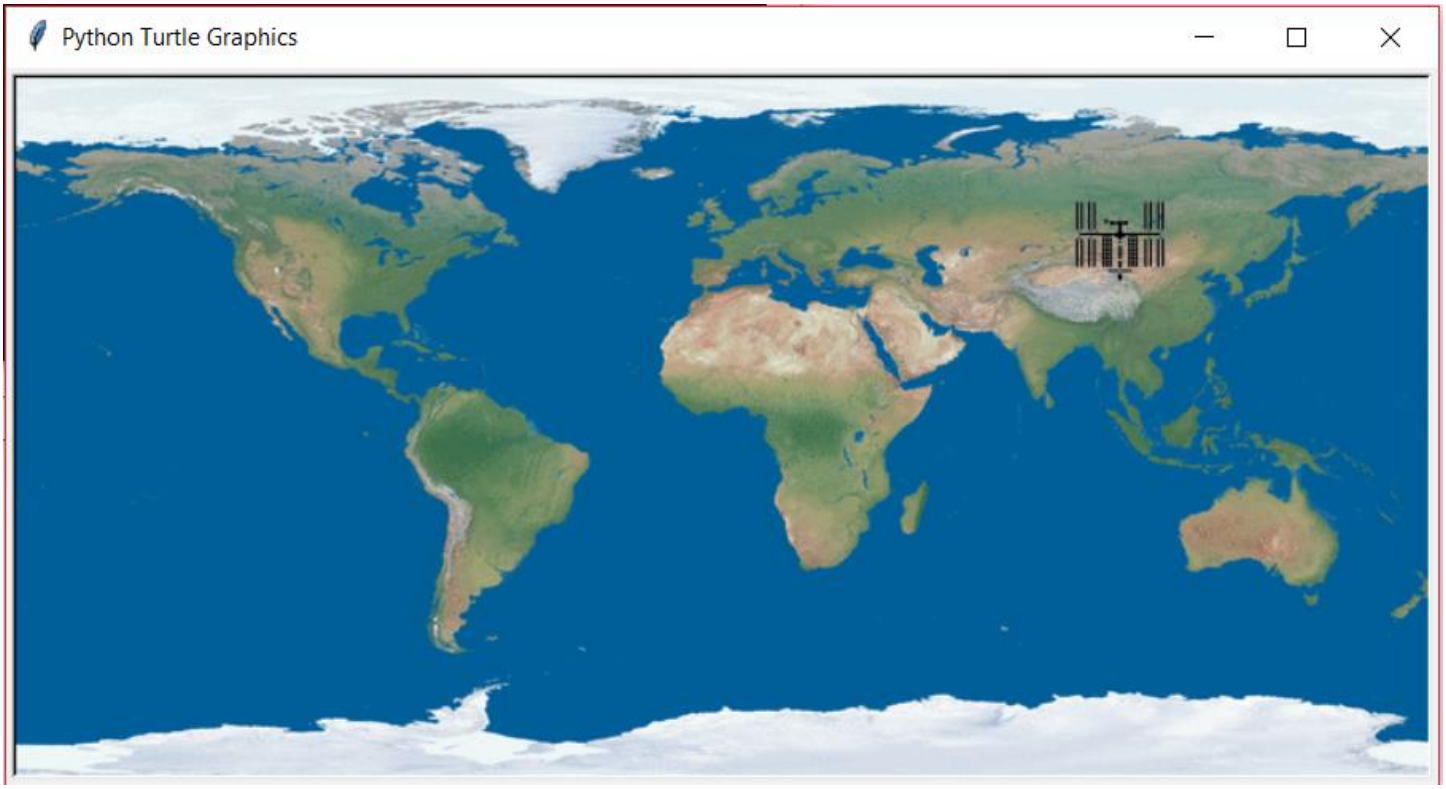
```
import json
import urllib.request
import turtle
url = 'http://api.open-notify.org/astros.json'
get = urllib.request.urlopen(url)
result = json.loads(get.read())
print('People in Space: ', result['number'])
astro = result['people']
for a in astro:
    print(a['name'], ' in ', a['craft'])

screen = turtle.Screen()
screen.setup(720, 360)
screen.setworldcoordinates(-180, -90, 180, 90)
screen.register_shape('space_station.gif')
url = 'http://api.open-notify.org/iss-now.json'
get = urllib.request.urlopen(url)
result = json.loads(get.read())
location = result['iss_position']
latitude = location['latitude']
longitude = location['longitude']
print('Latitude: ', latitude)
print('Longitude: ', longitude)


screen.bgpic('nasa.gif')
iss = turtle.Turtle()
iss.shape('space_station.gif')
iss.setheading(90)
iss.penup()
iss.goto(float(longitude), float(latitude))
turtle.done()
```

Execution Steps and Output:





Conclusion:

The astronaut details who are currently present in the ISS and the location of the ISS on top of the world map was successfully received using the given APIs. This was done using Python and the plotting of the ISS on the world map was done using the Turtle Python Library.