



Maryland AllSky

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Science Discovery and the Universe
Computer Science



SCIENCE,
DISCOVERY AND
THE UNIVERSE

Background Info

Maryland AllSky is an ongoing project at the University of Maryland's Astronomy Department.

The AllSky camera (Picture 1 Below), is a camera that takes thousands of pictures of the night sky every night. It is operational from an hour before sunset to an hour after sunrise every night.

These pictures are uploaded to a database where they can be accessed to analyze and study.

Activities

I did three major things for the project.

1. Worked on a script to upload a compiled video of every night to Youtube.
2. Made a set of pictures of the moon throughout its cycles
3. Worked on a script to automate the backing up of data when the local storage is filled up

Future Work

I think primarily, I've found that I enjoy automating menial tasks with programming scripts. I think that this is something I will continue to use, in any programming-oriented job I might take. The same can be said for Git and version control, the skills I have learned will be used in any kind of work I look for in the programming field. Finally, I think that browser automation is something that I am interested in and will continue to pursue.

Issues Confronting Site

1. It is time consuming to examine an entire night's worth of images.
2. Compiled videos are deleted to make room for the next night's video.
3. Huge amounts of data is difficult to backup and doing so manually takes a lot of time.
4. Graphics need to be generated for nightly thumbnails, but these graphics be both a specific size and copyright free.

Impact

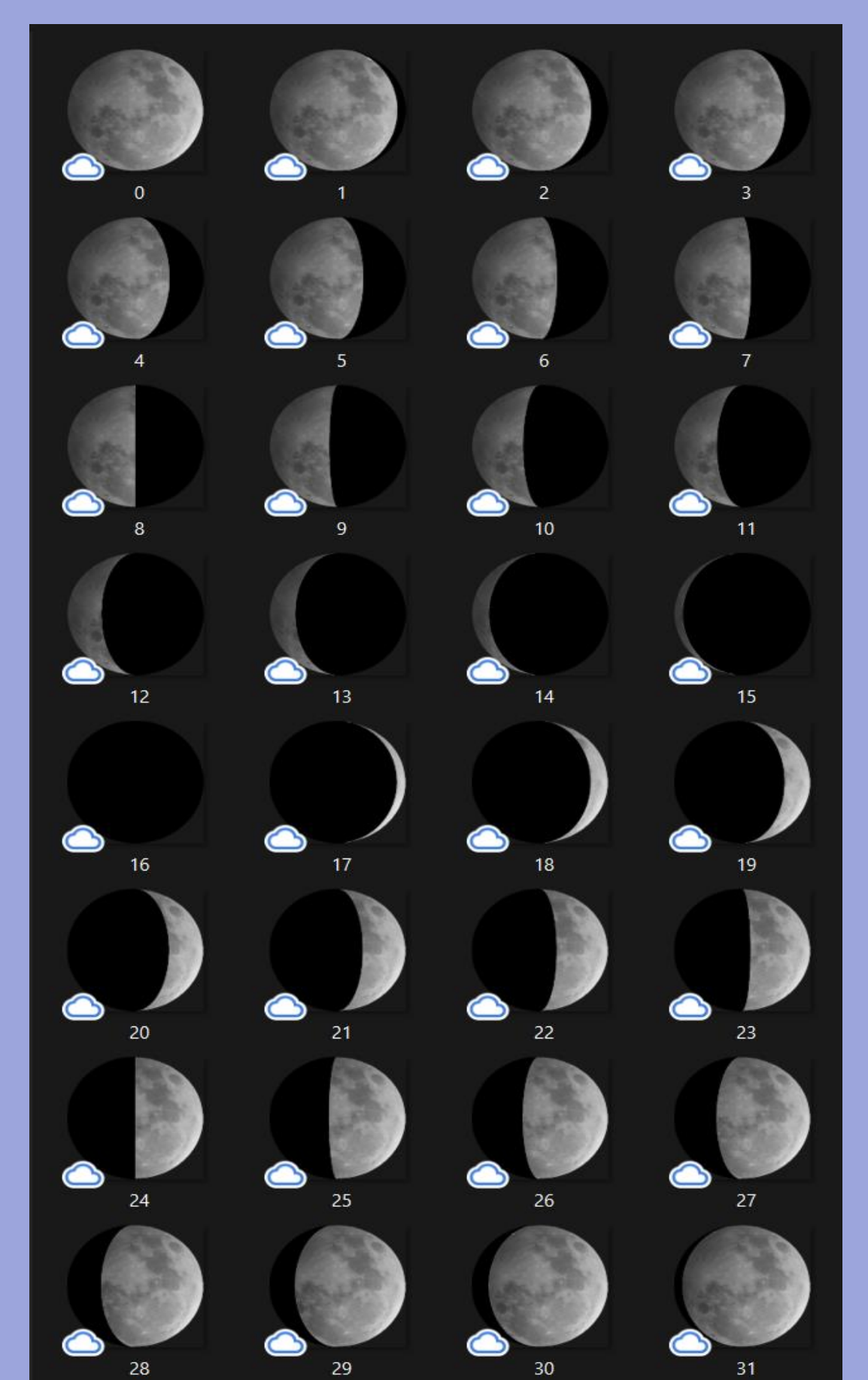
I believe my work has helped both the project, as well as myself.

For the project, I believe my work has most helped make it easier to find previous night's data and consume it in a quick and effective way.

For myself, I've learned quite a bit about browser automation using Selenium. I've also learned about using Git and version management tools. Finally, I've also learned about real world programming, with real world security and efficiency limitations.



```
def draw(PERCENTAGE, REVERSED, NAME):
    if REVERSED:
        if PERCENTAGE >= 50/100:
            B = (PERCENTAGE - 50/100) * 2 * RADIUS
            ellipse = Ellipse(xy=(0,0), height = RADIUS*2, width = B*2, fc='black')
            circle = Circle(xy=(0,0), radius = RADIUS, edgecolor = 'black', fc='white')
            semicircle = Wedge(center=(0,0), r = RADIUS, theta1 = 90, theta2 = 270, fc = 'black')
        else:
            PERCENTAGE = 1 - PERCENTAGE
            B = (PERCENTAGE - 50/100) * 2 * RADIUS
            ellipse = Ellipse(xy=(0,0), height = RADIUS*2, width = B*2, fc='white')
            circle = Circle(xy=(0,0), radius = RADIUS, edgecolor = 'black', fc='black')
            semicircle = Wedge(center=(0,0), r = RADIUS, theta1 = 270, theta2 = 90, fc='white')
    else:
        if PERCENTAGE >= 50/100:
            #Calculate Ellipse Dimensions
            B = (PERCENTAGE - 50/100) * 2 * RADIUS
            ellipse = Ellipse(xy=(0,0), height = RADIUS*2, width = B*2, fc='black')
            circle = Circle(xy=(0,0), radius = RADIUS, edgecolor = 'black', fc='white')
            semicircle = Wedge(center=(0,0), r = RADIUS, theta1 = 270, theta2 = 90, fc='black')
        else:
            PERCENTAGE = 1 - PERCENTAGE
            B = (PERCENTAGE - 50/100) * 2 * RADIUS
            ellipse = Ellipse(xy=(0,0), height = RADIUS*2, width = B*2, fc='white')
            circle = Circle(xy=(0,0), radius = RADIUS, edgecolor = 'black', fc='black')
            semicircle = Wedge(center=(0,0), r = RADIUS, theta1 = 90, theta2 = 270, fc='white')
```



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