

CSI6203 Scripting Languages

Assignment: Software Based Solution

Unit Learning Outcomes aligned with this assessment

- ULO 2: Design, develop and deploy scripted software solutions to perform desired tasks.
- ULO 3: Use industry standard scripting languages to create software-based solutions.

Course Learning Outcomes aligned with this assessment

- CLO1: Reflect critically on a complex body of cyber security focused knowledge, research principles and methods to demonstrate mastery of professional practice.
- CLO 4: Use high level self-management skills to initiate, plan and execute a complex cyber security research paper or professional project.

Task:

You have been tasked with creating a script to automatically retrieve information from the North American Space Association (NASA) website.

Each day, NASA posts a new astronomy image to <https://apod.nasa.gov>. The image also includes a title for the image, explanation text for the image and credits for the image's origin. Your task is to write a bash script that can be used to access this information. The script should work as follows:

- Given a specific date, the script should be able to download the image posted on that date
- Given a specific date, the script should be able to download the title, explanation text and credits
- Given two dates, the script should be able to download all images posted between the two dates (maximum of 10 images at a time)

Additional Requirements:

- If the NASA website is unavailable, the script should print an appropriate error message and exit with a status of 1
- Downloaded images should be named after the title of the image (eg. "The Sombrero Galaxy in Infrared.jpg")
- If a filename is specified, the image or output should be saved to that file. If no file is specified, the image should be downloaded to the current directory
- The script should use command line options to control behaviour (see examples)

The assignment should make use of version control. Be sure to commit your work to a git repository regularly

Example script use:

```
$ ./nasa.sh -d 2019-01-01
Connecting to nasa.gov...
Downloading "The Sombrero Galaxy in Infrared.jpg"
Finished.
```

```
$ ./nasa.sh --type explanation --date 2019-01-01
```

Connecting to nasa.gov...

This floating ring is the size of a galaxy. In fact, it is a galaxy -- or at least part of one: the photogenic Sombrero Galaxy, one of the largest galaxies in the nearby Virgo Cluster of Galaxies. The dark band of dust that obscures the mid-section of the Sombrero Galaxy in optical light actually glows brightly in infrared light. The featured image, digitally sharpened, shows the infrared glow, recently recorded by the orbiting Spitzer Space Telescope, superposed in false-color on an existing image taken by NASA's Hubble Space Telescope in optical light. The Sombrero Galaxy, also known as M104, spans about 50,000 light years across and lies 28 million light years away. M104 can be seen with a small telescope in the direction of the constellation Virgo. News: New Horizons Spacecraft Passes Ultima Thule

Finished.

```
$ ./nasa.sh -t details -d 2019-01-01
```

Connecting to nasa.gov...

TITLE: The Sombrero Galaxy in Infrared

EXPLANATION:

This floating ring is the size of a galaxy. In fact, it is a galaxy -- or at least part of one: the photogenic Sombrero Galaxy, one of the largest galaxies in the nearby Virgo Cluster of Galaxies. The dark band of dust that obscures the mid-section of the Sombrero Galaxy in optical light actually glows brightly in infrared light. The featured image, digitally sharpened, shows the infrared glow, recently recorded by the orbiting Spitzer Space Telescope, superposed in false-color on an existing image taken by NASA's Hubble Space Telescope in optical light. The Sombrero Galaxy, also known as M104, spans about 50,000 light years across and lies 28 million light years away. M104 can be seen with a small telescope in the direction of the constellation Virgo. News: New Horizons Spacecraft Passes Ultima Thule

IMAGE CREDIT: R. Kennicutt (Steward Obs.) et al., SSC, JPL, Caltech, NASA

Finished.

```
$ ./nasa.sh --range 2019-01-01 2019-01-04
```

Connecting to nasa.gov...

Downloading "The Sombrero Galaxy in Infrared.jpg"

Downloading "The Orion Nebula in Infrared from WISE.jpg"

Downloading "Ultima and Thule.png"

Downloading "Ultima Thule Rotation Gif.gif"

Finished.

Marking Rubric

	Low Performance	Medium Performance	High Performance	
Image downloading	No attempt and/or Not functional 0	Some functionality implemented. May not meet all additional requirements. 1-4	Image downloading fully implemented 5	/5
Command-line options	No attempt and/or Not functional 0	Uses some command line arguments but could be improved. 1-4	Command-line arguments fully implemented 5	/5
Date handling	No/poor attempt and/or Not functional 0-4	Most functionality implemented. May not meet all additional requirements. 5-7	Date handling correctly meets all requirements 8-10	/10
Text Processing	No/poor attempt and/or Not functional 0-4	Most functionality implemented. May not meet all additional requirements. 5-7	Text is correctly processed to ensure all output (including filenames) is correct, clear and human readable. 8-10	/10
Code structure (functions, comments, overall approach)	Poor structure, missing functions/ comments/ indenting 0-4	Structure is acceptable, missing some functions/comments or has some readability concerns 5-7	Script is well structured and highly readable/maintainable 8-10	/10
Total				/40