Module 10 Challenge

New Attempt

Due Mar 14 by 12:59am **Points** 100 **Submitting** a text entry box or a website url

Background

Robin's web app is looking good and functioning well, but she wants to add more polish to it. She had been admiring images of Mars's hemispheres online and realized that the site is scraping-friendly. She would like to adjust the current web app to include all four of the hemisphere images. To do this, you'll use BeautifulSoup and Splinter to scrape full-resolution images of Mars's hemispheres and the titles of those images, store the scraped data on a Mongo database, use a web application to display the data, and alter the design of the web app to accommodate these images.

What You're Creating

This new assignment consists of three technical analyses. You will submit the following deliverables:

- Deliverable 1: Scrape Full-Resolution Mars Hemisphere Images and Titles
- Deliverable 2: Update the Web App with Mars Hemisphere Images and Titles
- Deliverable 3: Add Bootstrap 3 Components

Files

Use the following links to download the Challenge starter codes.

Download the starter code. (https://2u-data-curriculum-team.s3.amazonaws.com/dataviz-online/module_10/Mission_to_Mars_Challenge_starter_code.ipynb)

Download the updated index.html file. (https://2u-data-curriculum-team.s3.amazonaws.com/dataviz-online/module_10/index.html)

Deliverable 1: Scrape Full-Resolution Mars Hemisphere Images and Titles (40 points)

Deliverable 1 Instructions

Using BeautifulSoup and Splinter, you'll scrape full-resolution images of Mars's hemispheres and the titles of those images.

REWIND

For this deliverable, you've already done the following in this module:

- **Lesson 10.3.2:** Use Splinter and Beautiful Soup
- **Lesson 10.3.4:** Scrape images
- **Lesson 10.5.1:** Use Flask to create a web app
- **Lesson 10.5.2:** Update the code for the web app
- **Lesson 10.5.3:** Connect MongoDB with the web app

- Lesson 10.3.3: Connect MongoDB with the web app

Follow the instructions below to complete Deliverable 1.

1. Make a copy of your `Mission_to_Mars.ipynb` file, and rename it `Mission_to_Mars_Challenge.ipynb`.
2. Download the `Mission_to_Mars_Challenge_starter_code.ipynb`, copy the starter code, and paste at the end of your `Mission_to_Mars_Challenge.ipynb` file.
3. In Step 1, use your browser to visit the **Mars Hemispheres (https://astrogeology.usgs.gov/search/results?q=hemisphere+enhanced&k1=target&v1=Mars)** website to view the hemisphere images.

4. Use the DevTools to inspect the page for the proper elements to scrape. You will need to retrieve the full-resolution image for each of Mars's hemispheres.

NOTE

> There is more than one way to get the images and titles.

5. In Step 2, create a list to hold the `.jpg` image URL string and title for each hemisphere image.
6. In Step 3, write code to retrieve the full-resolution image URL and title

for each hemisphere image. The full-resolution image will have the `.jpg` extension.

7. Loop through the full-resolution image URL, click the link, find the `Sample` image anchor tag, and get the `href`.

SHOW HINT

8. Save the full-resolution image URL string as the value for the `img_url` key that will be stored in the dictionary you created from the **Hint**.
9. Save the hemisphere image title as the value for the `title` key that will be stored in the dictionary you created from the **Hint**.
10. Before getting the next image URL and title, add the dictionary with the image URL string and the hemisphere image title to the list you created in Step 2.
11. In Step 4, print the list of dictionary items. Your list should look like the following image:

12. After you have confirmed that you have the image URLs and titles for all four hemisphere images, quit the browser by executing Step 5.

Deliverable 1 Requirements

You will earn a perfect score for Deliverable 1 by completing all

requirements below:

- Code is written that retrieves the full-resolution image and title for each hemisphere image **(10 pt)**
- The full-resolution images of the hemispheres are added to the dictionary. **(10 pt)**
- The titles for the hemisphere images are added to the dictionary. **(10 pt)**
- The list contains the dictionary of the full-resolution image URL string and title for each hemisphere image. **(10 pt)**

Deliverable 2: Update the Web App with Mars's Hemisphere Images and Titles (40 points)

Deliverable 2 Instructions

Using your Python and HTML skills, you'll add the code you created in Deliverable 1 to your `scraping.py` file, update your Mongo database, and modify your `index.html` file so the webpage contains all the information you collected in this module as well as the full-resolution image and title for each hemisphere image.

REWIND

For this deliverable, you've already done the following in this module:

- **Lesson 10.3.6:** Export your script as a Python file

- **Lesson 10.5.1** Use Flask to create a web app
- **Lesson 10.5.2:** Update the code for the web app
- **Lesson 10.5.3:** Connect MongoDB with the web app

Follow the instructions below to complete Deliverable 2.

1. Export the `Mission_to_Mars_Challenge.ipynb` file as a Python file, and save it as `Mission_to_Mars_Challenge.py`.
2. In the `def scrape_all()` function in your `scraping.py` file, create a new dictionary in the `data` dictionary to hold a list of dictionaries with the URL string and title of each hemisphere image.
3. Below the `def mars_facts()` function in the `scraping.py` file, create a function that will scrape the hemisphere data by using your code from the `Mission_to_Mars_Challenge.py` file. At the end of the function, return the scraped data as a list of dictionaries with the URL string and title of each hemisphere image.
4. Run the `app.py` file, then check your Mongo database to make sure that you are retrieving all of the data.
5. Modify the `index.html` file to access your database, and retrieve the `img_url` and `title` as you loop through the dictionary in the database using `{% for hemisphere in mars.hemispheres %}`. The dictionary in the mars `hemispheres` database is the dictionary that was created from the Hint after Step 3 in Deliverable 1.

If you'd like a hint on coding the syntax for rendering Mongo database objects in your `index.html` file, that's totally okay. If not, that's great too. You can always revisit this later if you change your mind.

SHOW HINT

6. Run the `app.py` file, open the `index.html` file, and click the "Scrape New Data" button.
7. After you have scraped the data, confirm that your webpage has the full-resolution images and the titles of the four hemisphere images, like the image below.

8. Save your `Mission_to_Mars_Challenge.ipynb` file, the updated `scraping.py` file, and the updated `index.html` file.

Deliverable 2 Requirements

You will earn a perfect score for Deliverable 2 by completing all requirements below:

- The `scraping.py` file contains code that retrieves the full-resolution image URL and title for each hemisphere image **(10 pt)**
- The Mongo database is updated to contain the full-resolution image URL and title for each hemisphere image **(10 pt)**
- The `index.html` file contains code that will display the full-resolution image URL and title for each hemisphere image **(10 pt)**
- After the scraping has been completed, the web app contains all the

information from this module and the full-resolution images and titles for the four hemisphere images **(10 pt)**

Deliverable 3: Add Bootstrap 3 Components (20 points)

Deliverable 3 Instructions

For this part of the Challenge, update your web app to make it mobile-responsive, and add two additional Bootstrap 3 components to make it stand out.

REWIND

For this deliverable, you've already done the following in this module:

- **Lesson 10.6.1:** Customize the appearance of a webpage

As you update your app, keep the following questions in mind:

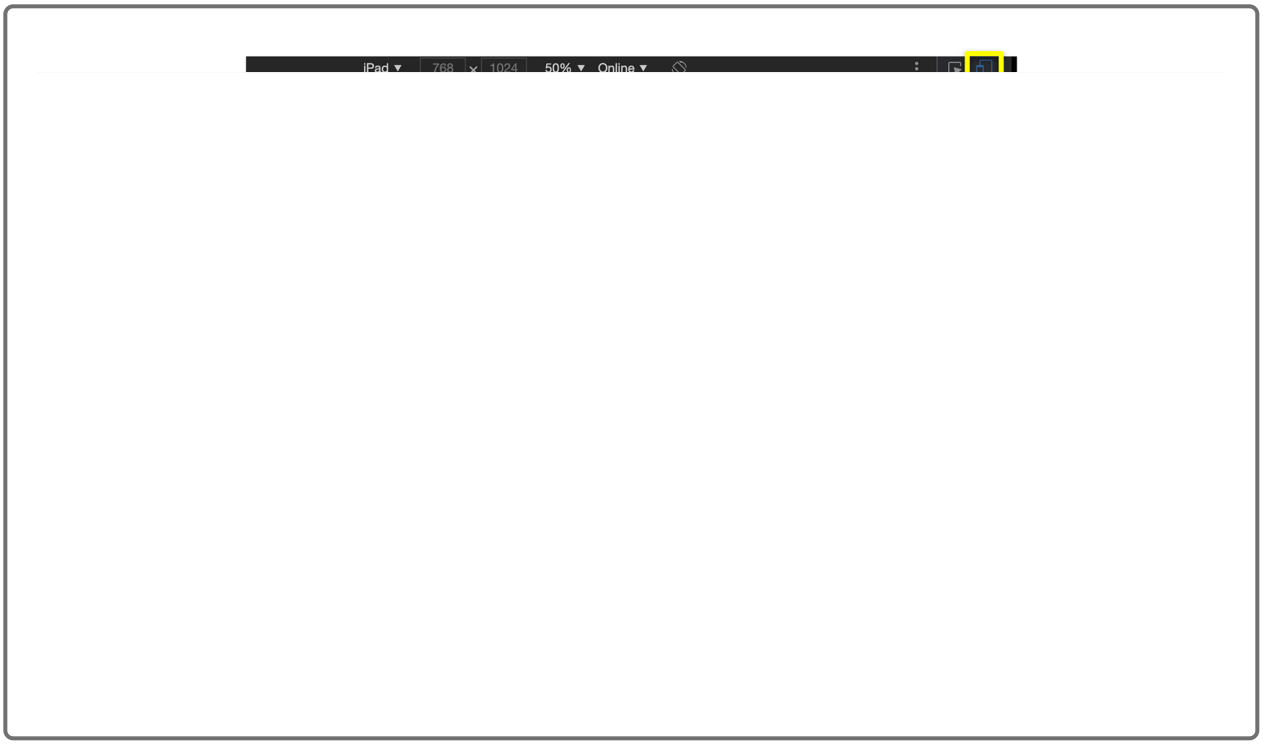
- Is this page clean?
- Does the page stand out from other pages?

Follow the instructions below to complete Deliverable 3.

1. Use the **Bootstrap 3 grid system**

(https://getbootstrap.com/docs/3.3/examples/grid/) examples to update your `index.html` file so your website is mobile-responsive. Use the DevTools to test the responsiveness of your website.

- Click on the Toggle Device Toolbar icon to open the UI that enables you to simulate responsiveness.
- Choose a device to test your webpage, as shown in the following image:



2. Add two other Bootstrap 3 components from this **list** (https://getbootstrap.com/docs/3.3/css/) . Examples include:

   - Styling the "Scrape New Data" button.
   - Customizing the facts table.
   - Adding the hemisphere images as thumbnails, like the image below.

Deliverable 3 Requirements

You will earn a perfect score for Deliverable 3 by completing all requirements below:

- The webpage is mobile-responsive **(10 pt)**
- Two additional Bootstrap 3 components are used to style the webpage **(10 pt)**

Submission

Once you're ready to submit, make sure to check your work against the rubric to ensure you are meeting the requirements for this Challenge one final time. It's easy to overlook items when you're in the zone!

As a reminder, the deliverables for this Challenge are as follows:

- Deliverable 1: Scrape High-Resolution Mars Hemisphere Images and Titles
- Deliverable 2: Update the Web App with Mars Hemisphere Images and Titles
- Deliverable 3: Add Bootstrap 3 Components

Upload the following to your Mission-to-Mars GitHub repository:

1. The `Mission_to_Mars_Challenge.ipynb` file with all the code used for scraping.
2. An updated `scraping.py` file.
3. The [illegible] file.

3. The `app.py` file.
4. The `index.html` file in the template folder and any CSS stylesheets.
5. A README.md that describes the purpose of the repository. Although there is no graded written analysis for this challenge, it is encouraged and good practice to add a brief description of your project.

To submit your challenge assignment for grading in Bootcamp Spot, click Start Assignment, click the Website URL tab, then provide the URL of your Mission-to-Mars GitHub repository, and then click Submit. Comments are disabled for graded submissions in BootCampSpot. If you have questions about your feedback, please notify your instructional staff or the Student Success Manager. If you would like to resubmit your work for an improved grade, you can use the **Re-Submit Assignment** button to upload new links. You may resubmit up to 3 times for a total of 4 submissions.

IMPORTANT

> Once you receive feedback on your Challenge, make any suggested updates or adjustments to your work. Then, add this week's Challenge to your professional portfolio.

NOTE

> You are allowed to miss up to two Challenge assignments and still earn your certificate. If you complete all Challenge assignments, your lowest
>
> two grades will be dropped. If you wish to skip this assignment, click Next, and move on to the next Module.

Module-10 Rubric

Criteria	Ratings					Pts
Deliverable 1: Scrape Full-Resolution Mars Hemisphere Images	**40 to >37.0 pts** **Demonstrating Proficiency** ✓Code is written that retrieves ALL full-resolution images and titles of the four hemisphere images. ✓ALL full-resolution images are added to the dictionary.	**37 to >34.0 pts** **Approaching Proficiency** ✓Code is written that retrieves THREE of FOUR full-resolution images and all titles of the four hemisphere images. ✓THREE full-resolution images are added to the dictionary. ✓ALL four hemisphere titles are	**34 to >30.0 pts** **Developing Proficiency** ✓Code is written that retrieves TWO of FOUR full-resolution images and all titles of the four hemisphere images. ✓TWO full-resolution images are added to the dictionary. ✓All four hemisphere titles are	**30 to >0.0 pts** **Emerging** ✓Code is written that retrieves ONE of FOUR full-resolution images and all titles of the four hemisphere images. ✓ONE full-resolution image is added to the dictionary.	**0 pts** **Incomplete**	40 pts
Deliverable 2: Update the Web App with Mars Hemisphere Images	**40 to >35.0 pts** **Demonstrating Proficiency** ✓The scraping.py file is updated and retrieves ALL FOUR of the full-resolution image URLs and titles. ✓The mongo database is updated to contain ALL FOUR of the full-resolution image URLs and titles. ✓The	**36 to >32.0 pts** **Approaching Proficiency** ✓The scraping.py file is updated and retrieves THREE of FOUR full-resolution image URLs and titles. ✓The mongo database is updated but contains THREE of FOUR full-resolution image URLs and titles. ✓The index.html file contains	**32 to >29.0 pts** **Developing Proficiency** ✓The scraping.py file is updated and retrieves TWO of FOUR full-resolution image URLs and titles. ✓The mongo database is updated but contains TWO of FOUR full-resolution image URLs and titles. ✓The index.html file contains code	**29 to >0.0 pts** **Emerging** ✓The scraping.py file is updated and retrieves ONE of FOUR full-resolution image URLs and titles. ✓The mongo database is updated but contains ONE of FOUR full-resolution image URLs and titles. ✓The index.html file contains code	**0 pts** **Incomplete**	40 pts
Deliverable 3: Add Bootstrap 3 Components	**20 to >17.0 pts** **Demonstrating Proficiency** ✓The webpage is mobile responsive. ✓TWO additional Bootstrap 3 web app	**17 to >13.0 pts** **Approaching Proficiency** ✓The webpage is mobile responsive. ✓TWO additional Bootstrap 3 ✓The web app	**13 to >10.0 pts** **Developing Proficiency** ✓The webpage is mostly mobile responsive with one error. ✓There is ONE of TWO ✓The web app	**10 to >0.0** **Emerging** ✓The webpage is not fully mobile responsive. ✓There is ONE of TWO additional	**0 pts** **Incomplete**	20 pts
						Total Points: 100

contains all the information from this module and ALL FOUR full-resolution images and titles of the four hemisphere images.	contains all the information from this module but only THREE full-resolution images and titles of the four hemisphere images.	contains all the information from this module but only TWO full-resolution images and titles of the four hemisphere images.	contains all the information from this module but only ONE full-resolution image and title of the four hemisphere images.