JHU EN.605.256: Modern Software Concepts in Python
Module 1

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Please see the screenshots below of the environment configuration, running of the Python program, and the 3 pages of my Flask site.

```
(mod1) taylor@github-vm:~/Documents/repos/jhu_software_concepts/module_1$ pip list
Package    Version
---------- -------
pip        25.1
setuptools 78.1.1
wheel      0.45.1
(mod1) taylor@github-vm:~/Documents/repos/jhu_software_concepts/module_1$ pip install -r requirements.txt
Collecting flask (from -r requirements.txt (line 1))
  Using cached flask-3.1.1-py3-none-any.whl.metadata (3.0 kB)
Collecting blinker>=1.9.0 (from flask->-r requirements.txt (line 1))
  Using cached blinker-1.9.0-py3-none-any.whl.metadata (1.6 kB)
Collecting click>=8.1.3 (from flask->-r requirements.txt (line 1))
  Using cached click-8.2.1-py3-none-any.whl.metadata (2.5 kB)
Collecting itsdangerous>=2.2.0 (from flask->-r requirements.txt (line 1))
  Using cached itsdangerous-2.2.0-py3-none-any.whl.metadata (1.9 kB)
Collecting jinja2>=3.1.2 (from flask->-r requirements.txt (line 1))
  Using cached jinja2-3.1.6-py3-none-any.whl.metadata (2.9 kB)
Collecting markupsafe>=2.1.1 (from flask->-r requirements.txt (line 1))
  Downloading MarkupSafe-3.0.2-cp312-cp312-manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (4.0 kB)
Collecting werkzeug>=3.1.0 (from flask->-r requirements.txt (line 1))
  Using cached werkzeug-3.1.3-py3-none-any.whl.metadata (3.7 kB)
Using cached flask-3.1.1-py3-none-any.whl (103 kB)
Using cached blinker-1.9.0-py3-none-any.whl (8.5 kB)
Using cached click-8.2.1-py3-none-any.whl (102 kB)
Using cached itsdangerous-2.2.0-py3-none-any.whl (16 kB)
Using cached jinja2-3.1.6-py3-none-any.whl (134 kB)
Downloading MarkupSafe-3.0.2-cp312-cp312-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (23 kB)
Using cached werkzeug-3.1.3-py3-none-any.whl (224 kB)
Installing collected packages: markupsafe, itsdangerous, click, blinker, werkzeug, jinja2, flask
Successfully installed blinker-1.9.0 click-8.2.1 flask-3.1.1 itsdangerous-2.2.0 jinja2-3.1.6 markupsafe-3.0.2 werkzeug-3.1
(mod1) taylor@github-vm:~/Documents/repos/jhu_software_concepts/module_1$ pip list
Package      Version
------------ -------
blinker      1.9.0
click        8.2.1
Flask        3.1.1
itsdangerous 2.2.0
Jinja2       3.1.6
MarkupSafe   3.0.2
pip          25.1
setuptools   78.1.1
Werkzeug     3.1.3
wheel        0.45.1
(mod1) taylor@github-vm:~/Documents/repos/jhu_software_concepts/module_1$ python run.py
 * Serving Flask app 'run'
 * Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
 * Running on all addresses (0.0.0.0)
 * Running on http://127.0.0.1:8080
```
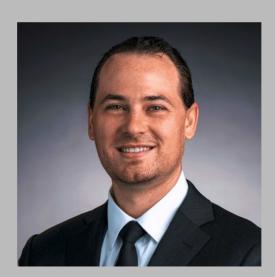
Welcome to My Website!

High Level Summary:

My name is Taylor Reininger. I'm a Senior Machine Learning Engineer at the Johns Hopkins University Applied Physics Laboratory with 9 years of experience applying AI/ML and software to some of the world's toughest problems! Prior to working at the lab, I received my B.S. and M.S. in Mechanical Engineering from North Carolina State University in Raleigh, NC, where I specialized in robotic control algorithms.

In my spare time, I love cooking, traveling the world, and spending time with my rambunctious border collie puppy! I consider continuous learning a way of life, and have taken an additional 22 courses since getting my last degree. As many will attest, the more you learn, the more you realize you don't know.

I'm excited to be here learning modern software concepts and building web apps. I can already see a bunch of ways to use these topics in my role and in my hobbies. Please feel free to reach out to me if you'd like to connect!

Contact Me

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- Personal Website: www.TaylorReininger.com

Projects and Publications

Publications:

- Gurbuz, S. Z., Bruggenwirth, S., Reininger, T. J., Gurbuz, A. C., & Smith, G. E. " The Role of Neural Networks in Cognitive Radar ". In Mishra, K. V., Shankar, B., & Rangaswamy, M. (Eds.). Next-Generation Cognitive Radar Systems. Institution of Engineering and Technology, 2024.
- Reininger, T. J. & Smith, G. E., " Deep Deterministic Policy Gradient Artificial Intelligence for Radar Applications ," IEEE RadarConf, 2022, pp. 1-6.
- Smith, G. E. & Reininger, T. J., " Reinforcement Learning for Waveform Design ," IEEE RadarConf, 2021, pp. 1-6.
- Reininger, T. J., " Biomimicry of Learning Complex Movements by Coordination of Simple Least-Effort Parts ," Master's Thesis, North Carolina State University, 2016, pp. 1-34.

Projects:

I am currently building this website called **Module 1**. All the code can be found on my GitHub here. Note: this project is private, and will require access to view. This site is intended to explore the use of the Flask framework.

Key concepts explored here are:

- Flask with Python
- HTML
- Templating
- CSS
- Bootstrap

My general approach is as follows:

- Use `Flask` to orchestrate the webapp. Perform routing and facilitate templating to rapidly deploy usable HTML.
- All pages are based off a parent template page called `base.html`.
- Each child template page inherits from the parent page.
- Use the `render_template` method to facilitate routing and to pass variables into the appropriate pages.
- Produce a navigation bar at the top of the page using `Bootstrap`.
- Use variables passed into pages to set the title, content, and highlight the current page in the navigation bar.
- Use `divs` to keep content organized within each page.