Homework 02

⚠ Before you start ⚠

Duplicate this Jupyter Notebook in your `week-02` folder (right-click -> Duplicate) and then your last name to the beginning of it (ie. `hw-02-blevins.ipynb` - otherwise you risk having all your work overwritten when you try to sync your GitHub repository with your instructor's repository.

⚠ No, seriously: check the name of this file. Is it the copy you made? (ie. `hw-02-blevins.ipynb`). If so, you can proceed ⚠

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This homework assignment will help you review Jupyter Notebooks and Python variables and data types. Answer the questions below and follow the instructions. When you're finished, you should follow the instructions on the course website to submit it to Canvas.

Madlibs with Christine Darden

1. The cell below contains the first line of Christine Darden's Wikipedia page. Convert this cell to "Markdown" and then make the following revisions:

1. Make the words "Christine Darden" bolded.
2. Add a hyperlink to the word "Wikipedia" so that when a user clicks on it they will go to her Wikipedia page: https://en.wikipedia.org/wiki/Christine_Darden.
3. Add an unordered (bulleted) list of the three universities she attended (her three alma maters listed on her Wikipedia page).

(For help, see Jupyter Tips & Tricks)

Christine Darden (born September 10, 1942, as Christine Mann) is an American mathematician, data analyst, and aeronautical engineer who devoted much of her 40-year career in aerodynamics at NASA to researching supersonic flight and sonic booms.

Universities Attended:

- Hampton University

- Virginia State University
- George Washington University

–Wikipedia

2. Go to Christine Darden's Wikipedia page and find her name, birth year, and occupation. Assign these values to the variables: `name`, `birth_year`, and `occupation`. You should also assign the current year to the variable `current_year`.

In [12]:
```
name = "Christine Darden"
birth_year = 1942
occupation = "technical leader of NASA's Sonic Boom Group"
current_year = 2025
```

3. Double check to make sure that you have made the right kind of variables. Write four lines of code to print out that the following variable **types**:

- `name` is a string
- `occupation` is a string
- `birth_year` is an integer
- `current_year` is an integers

In [14]:
```
type(name)
```

Out[14]: str

In [15]:
```
type(occupation)
```

Out[15]: str

In [16]:
```
type(birth_year)
```

Out[16]: int

In [17]:
```
type(current_year)
```

Out[17]: int

4. Calculate Christine Darden's current age in years by using two of the variables above and a mathematical operator. (Using this crude method, her calculated age might not match her true age exactly.)

In [19]:
```
age = current_year - birth_year
print(age)
```

```
83
```

5. Assign the Python expression above to a new variable called `current_age`.

In [21]:
```
current_age = current_year - birth_year
print(current_age)
```

```
83
```

6. Use `print()` and **f-strings** to write two sentences about Christine Darden using the variables `name`, `occupation`, `birth year` and `current_age`.

In [23]:
```
print(f"{name} was born in {birth_year}. She worked as a {occupation} and is
```

```
Christine Darden was born in 1942. She worked as a technical leader of NAS
A's Sonic Boom Group and is now 83.
```

Debugging/Troubleshooting Practice

7. The code below returns an error message. Fix the error and then run the code so that it prints correctly.

In [26]:
```
print(f"{name} was a {occupation}. She was born in {birth_year}.")
```

```
Christine Darden was a technical leader of NASA's Sonic Boom Group. She was
born in 1942.
```

8. Explain why the code above produced an error message.

This produced an error message because the quotation marks were not closed out.

9. The code below also doesn't work properly. Fix the problem and then run the code so that it prints correctly.

In [30]:
```
print(f"{name} was a {occupation}. She was born in {birth_year}.")
```

```
Christine Darden was a technical leader of NASA's Sonic Boom Group. She was
born in 1942.
```

10. Explain why the code above produced an error message.

This did not include the "f" at the beginning to retrieve the variables inserted in the sentence.

Bonus

Here are some bonus tasks in Python for you to try with Christine Darden:

- Try to calculate how many days she's lived (approximately)
- Print her name in all capital letters
- Print her name in all lowercase letters
- Count how many characters are in their name

In [35]:
```
days_in_year = 365
age_in_days = days_in_year * current_age
print(age_in_days)
```

```
30295
```

In [36]:
```
print(name.upper())
```

```
CHRISTINE DARDEN
```

In [37]:
```
print(name.lower())
```

```
christine darden
```

In [38]:
```
name_char = len(name)
print(name_char)
```

```
16
```

In [39]:
```
name_char = len(name.replace(" ",""))
print(name_char)
```

```
15
```

Submission

Follow the instructions I've made for submitting homework and then submit your files on the Canvas assignment page in two files (one `.ipynb` and one `.pdf`).

- Save your notebook
- `Kernel` -> `Restart Kernel and Run All Cells`
- `File` -> `Print` and try to find an option to Save/Print to PDF. Depending on your operating system and browser, this might be `Destination` -> `Save as PDF`, `Select Printer` -> `Microsoft Print to PDF` (instructions for different browsers). Name the file with the same naming convention as your .ipynb file (ie. `hw-02-yourlastname.pdf`) and save the resulting PDF file (ending in `.pdf`) into the same folder.

In [ ]:
```
```