CS128 Homework #1. **Spring 2022**

Task1a: The current code in the task1a cell assigns values to the variables **legal_age**, **fred_age**, and **pat_age**.

1. Update the task1a cell with two additional assignment statements. Assign the variable **fred_diff** to the difference between the legal age and Fred's current age. Assign the variable **pat_diff** to the difference between the legal age and Pat's current age.
2. Add 2 print statements to produce the expected results shown based on the values stored in the variables (i.e. don't hardcode 11 in your print statement, use the variable freds_age). The numbers highlighted in yellow indicate the variable values.

```
Fred is 11 years old and will be 18 in 7 years
Pat is 14 years old and will be 18 in 4 years
```

Task1b: Copy the code from **task1a** into the **task1b** cell. The legal age may vary by state.

1. Rather than hardcoding values 18, 11, and 14, update the code to prompt for 3 integer values. Store the input values in the variables **legal_age**, **fred_age**, and **pat_age**. Compute and print the age differences as in task1a. Test your code with the sample input values shown in the screenprint below. The numbers hightlighted in green represent values input by the user.

```
What is the legal age?18
How old is Fred?11
How old is Pat?5
Fred is 11 years old and will be 18 in 7 years
Pat is 5 years old and will be 18 in 13 years
```

2. Run the task1b cell again and enter different values:

```
What is the legal age?19
How old is Fred?17
How old is Pat?16
Fred is 17 years old and will be 19 in 2 years
Pat is 16 years old and will be 19 in 3 years
```

Task2a: Prompt for the price of a bag of chips (a float value) and the number of bags of chips purchase (an int value). Calculate and print the total cost as shown in the screen prints below. Use appropriate variable names such as **price_chips**, **num_bags**, **total_cost**. Run the cell multiple times to test different input values:

Test#1:

```
price of a bag of chips:2.99
number of bags of chips:4
Purchased 4 bags of chips at 2.99 per bag for a total cost of 11.96
```

Test#2:

```
price of a bag of chips:3.50
number of bags of chips:2
Purchased 2 bags of chips at 3.5 per bag for a total cost of 7.0
```

Task2b: Copy the code from the task2a cell into the task2b cell. Potato chips are on sale! In addition to asking for the price and number of bags, prompt for one additional value: the price discount (a float). Calculate and print the total cost and sales cost as shown in the sample output below. For example, if the original price is 3.50 and the discount is 0.15 (15 cents), then the sales price per bag is 3.50 - 0.15 = 3.35. Use appropriate variable names to store the new input and computed values.

Test#1:

```
price of a bag of chips:3.50
number of bags of chips:2
sales discount per bag:0.15
Original cost for 2 bags of chips at 3.5 per bag is 7.0
Sales cost for 2 bags of chips at 3.35 per bag is 6.7
```

Test#2:

```
price of a bag of chips:2.99
number of bags of chips:3
sales discount per bag:0.10
Original cost for 3 bags of chips at 2.99 per bag is 8.97
Sales cost for 3 bags of chips at 2.89 per bag is 8.67
```

Task3:

Create a form letter generator. Prompt for the student name, intended major, and high school graduation year. The name and major are strings and the year is an integer. Use appropriate variable names to store the values.

Assume the student will be at JCU for 4 years. Compute the expected JCU year of graduation based on the high school graduation year.

Use three print statements to compose the college acceptance form letter as shown in the examples:

Test#1:

```
enter name:Ann Lee
enter your intended major:Computer Science
enter year of high school graduation:2021
Congratulations Ann Lee on your acceptance to John Carroll University
You will enjoy being a Computer Science major
You graduated from high school in 2021 and should graduate from JCU in 2025
```

Test#2:

```
enter name:Devonte Miller
enter your intended major:Mathematics
enter year of high school graduation:2019
Congratulations Devonte Miller on your acceptance to John Carroll University
You will enjoy being a Mathematics major
You graduated from high school in 2019 and should graduate from JCU in 2023
```

Task4: Assume you are signing a two year lease on an apartment. The first 12 months of rent will have the same monthly price, but there will be an increase in rent for the second 12 months.

1. Prompt the user for (1) the monthly rent for the first year and (2) the amount the monthly rent will increase for year 2.
2. Calculate and print the total rent paid for year 1 and year 2 as shown in the examples:

Test#1:

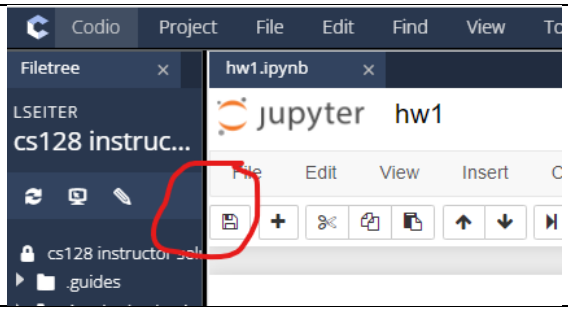
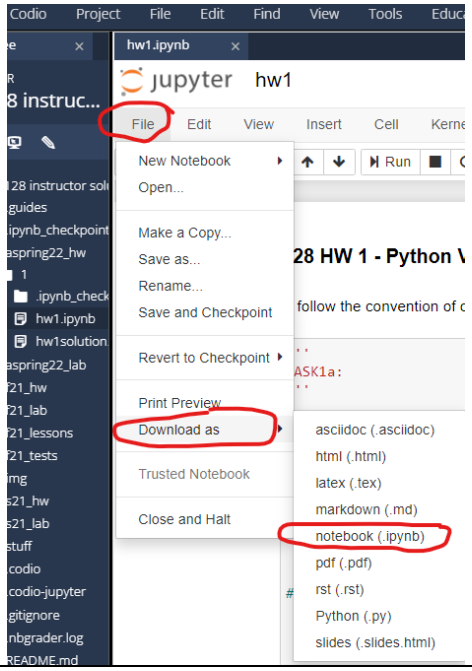
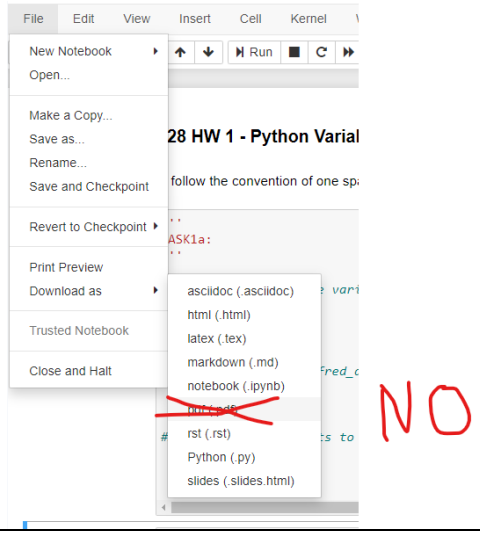
```
Monthly rent for year 1?800
Monthly increase year 2?75
Year 1 monthly rent of 800.0  for 12 months = 9600.0
Year 2 monthly rent of 875.0  for 12 months = 10500.0
```

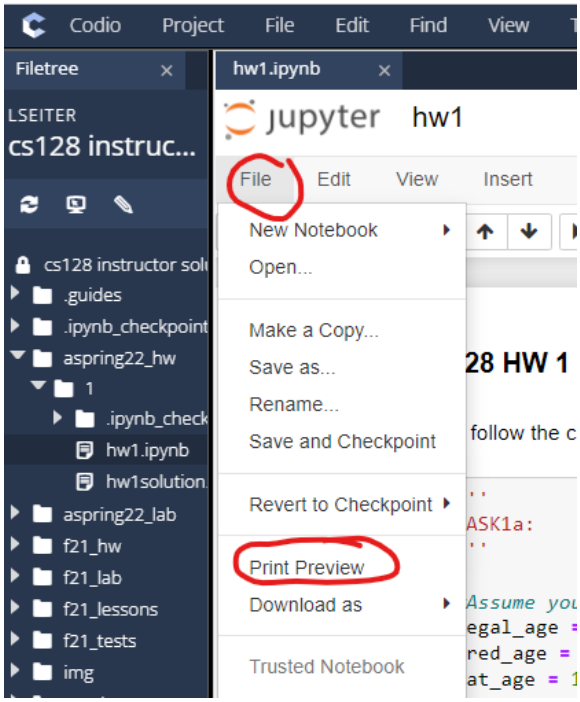
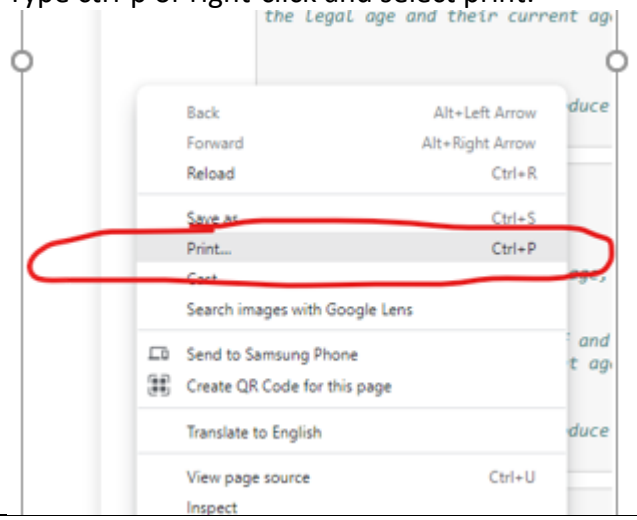
Test#2:

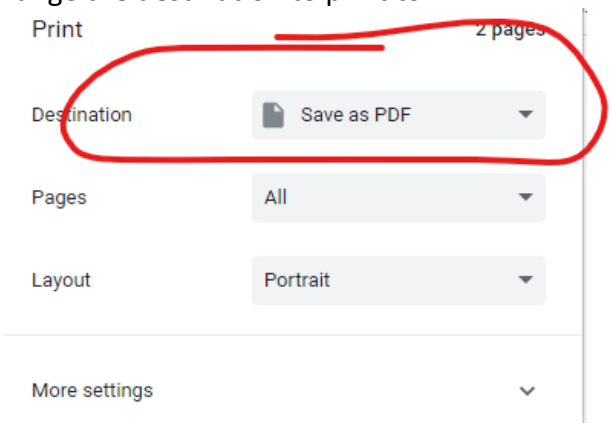
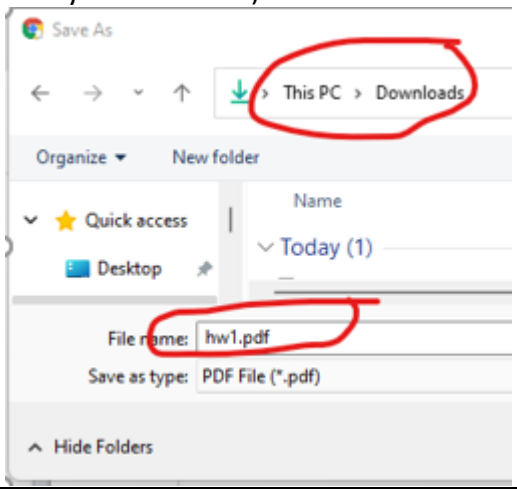
```
Monthly rent for year 1?575.50
Monthly increase year 2?20.25
Year 1 monthly rent of 575.5  for 12 months = 6906.0
Year 2 monthly rent of 595.75  for 12 months = 7149.0
```

HOW TO SUBMIT YOUR SOLUTION TO CANVAS.

Submit (1) hw1.ipynb and (2) hw1.pdf to Canvas under the hw1 assignment.

Make sure you save all changes to your notebook before downloading hw1.ipynb or creating hw1.pdf	
DOWNLOAD hw1.ipynb	
DOWNLOAD hw1.pdf NOTE: You can't just select File/Download as/pdf. That only saves the first page.	

You need to follow this process to save <u>all pages</u> of the notebook as a pdf.	1. Select File/Print Preview.  2. Type ctrl-p or right-click and select print: 

	3. Change the destination to print to PDF.  4. Save the file in your downloads folder (or somewhere that you can find it). Name the file hw1.pdf. 

NOTE: Don't bother opening the download file hw1.ipynb outside of Codio. If you try to open hw1.ipynb by double clicking on it, you will see strange text rather than the code you normally see when you open it in Codio.

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