Name: Corey Glover SDEV300-6382 Date: Jan. 25, 2022

Objective:

The goal of this program was to show the proper use of packages used in the python programming language. This was accomplished by using several packages such as datetime, math, sys, secrets and numpy among others. The program starts off with displaying a menu to user and asking what they want to do. Depending on the user choice depends on what is performed. They can either create a secure password, calculate and format a percentage from a fraction, calculate how many days from today's date to a specified date, use the Law of Cosines to calculate the leg of a triangle, or calculate the volume of a cylinder.

Test Cases:

Below is the table used for test cases and the predicted vs actual output.

Test Cases:	**User Input:**	**Predicted Output:**	**Actual Output:**	**Pass/Fail:**
1	random key entry	"Not a valid selection" re-prompt	"Not a valid selection" re-prompt	pass, fig 1
2	1	"Input Password length"	"Input Password length"	pass, fig 2
3	random key entry	Please try again'	Please try again'	pass, fig 2
4	5	Strong password is 12-64'	Strong password is 12-64'	pass, fig 2
5	100	Strong password is 12-64'	Strong password is 12-64'	pass, fig 2
6	12	How many Uppercase?'	How many Uppercase?'	pass, fig 2
7	random key entry	Please try again', re-prompt length	Please try again', re-prompt length	pass, fig 2
8	5,5,5,5	Please keep pw characters set to length entered', display characters entered, return main menu	Please keep pw characters set to length entered', display characters entered, return main menu	pass, fig 2
9	4,3,2,1	User pw generate was:', generated password	User pw generate was:', generated password	pass, fig 3
10	2	Please input numerator:'	Please input numerator:'	pass, fig 4
11	random key entry, 2.5, 3/4	Please ensure that entries are whole numbers'	Please ensure that entries are whole numbers'	pass, fig 4
12	2	enter denominator'	enter denominator'	pass, fig 4

13	3	enter number of digits'	enter number of digits'	pass, fig 4
14	4	Fraction 2/3 as percent is: 66.6667%'	Fraction 2/3 as percent is: 66.6667%'	pass, fig 4
15	3	There are 1255 days until July 4, 2025 from today,", date	There are 1255 days until July 4, 2025 from today,", date	pass, fig 5
16	4	Input value side 1:	Input value side 1:	pass, fig 6
17	random key entry	Please verify input	Please verify input	pass, fig 6
18	3,4,30	Display law of cosines, value for side a=3.0, value for side b=4.0, calculated side = 2.05	Display law of cosines, value for side a=3.0, value for side b=4.0, calculated side = 2.05	pass, fig 6
19	5	do you know the radius or circumference?	do you know the radius or circumference?	pass, fig 7
20	random key entry	Please verify input	please verify input	pass, fig 7
21	r or radius	Please input radius:	Please input radius:	pass, fig 7
22	random key entry	Please verify input, re-prompt	Please verify input, re-prompt	pass, fig 7
23	3	input height	input height	pass, fig 7
24	4	C= 18.85, rad.= 3.00, H=4.0, volume=113.10	C= 18.85, rad.= 3.00, H=4.0, volume=113.10	pass, fig 7
25	5	do you know the radius or circumference?	do you know the radius or circumference?	pass, fig 8
26	c, circumference	Please input circumference	Please input circumference	pass, fig 8
27	3	input height	input height	pass, fig 8
28	4	circumference=3, rad.=.48, h=4.0, volume= 2.86	circumference=3, rad.=.48, h=4.0, volume= 2.86	pass, fig 8
29	0	Thank you for using application	Thank you for using application	pass, fig 9

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Test Case Screenshots:

Below are some screenshots of the file running and its corresponding output as referenced in the case study.

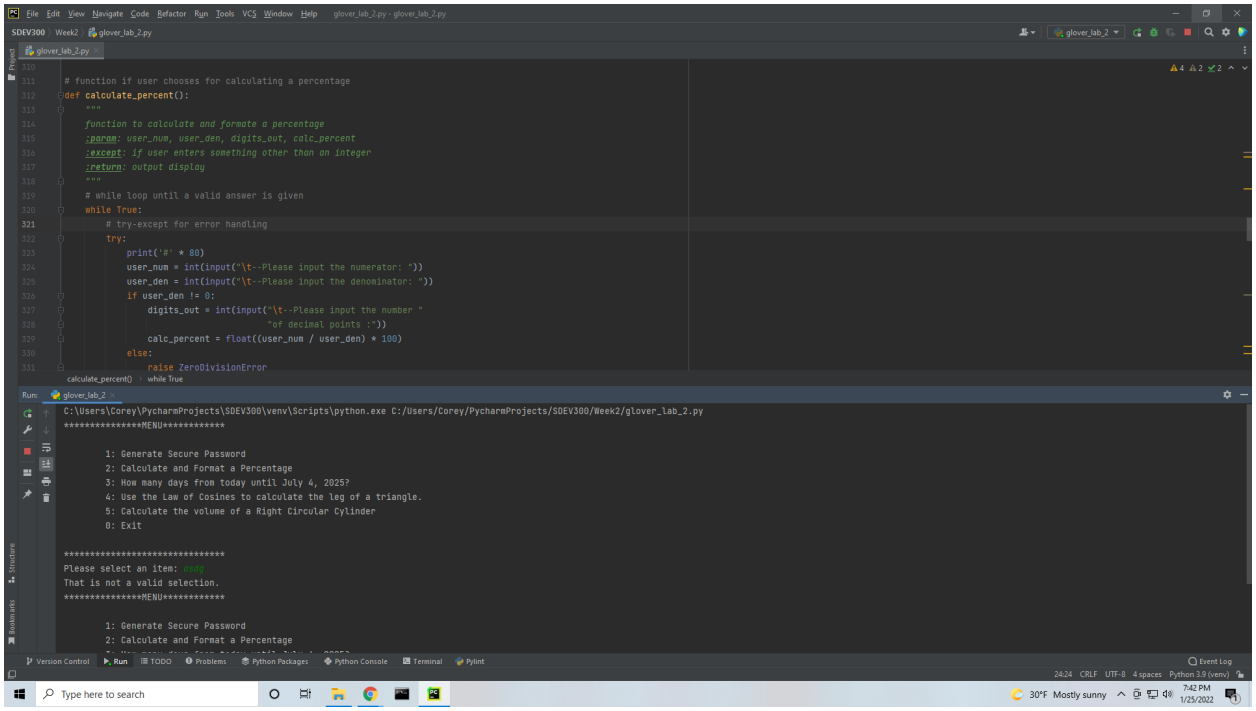

Fig. 1

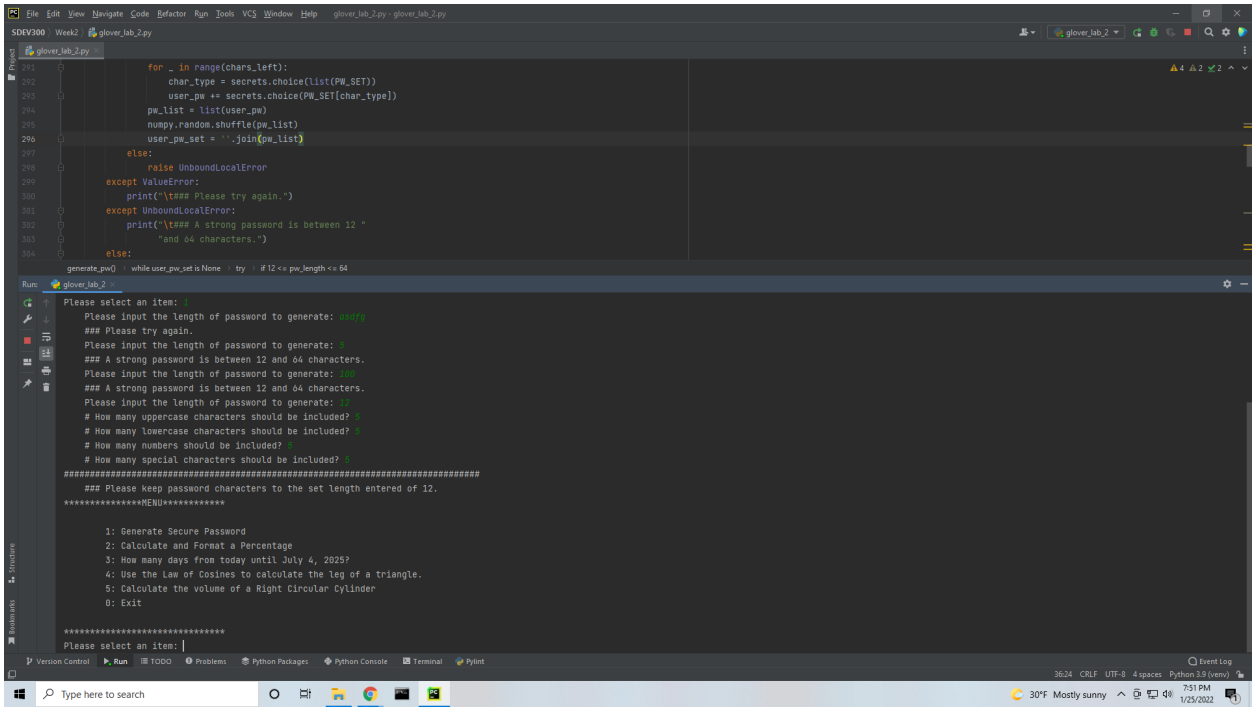

Fig. 2

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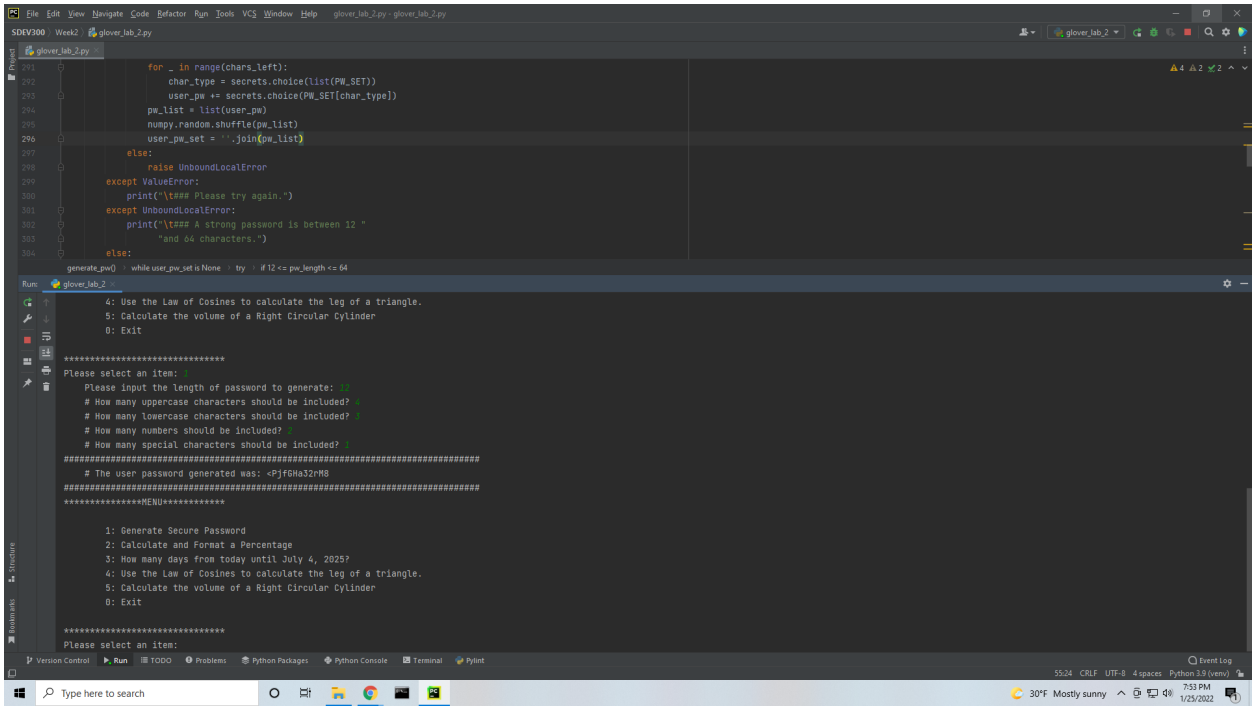

Fig. 3

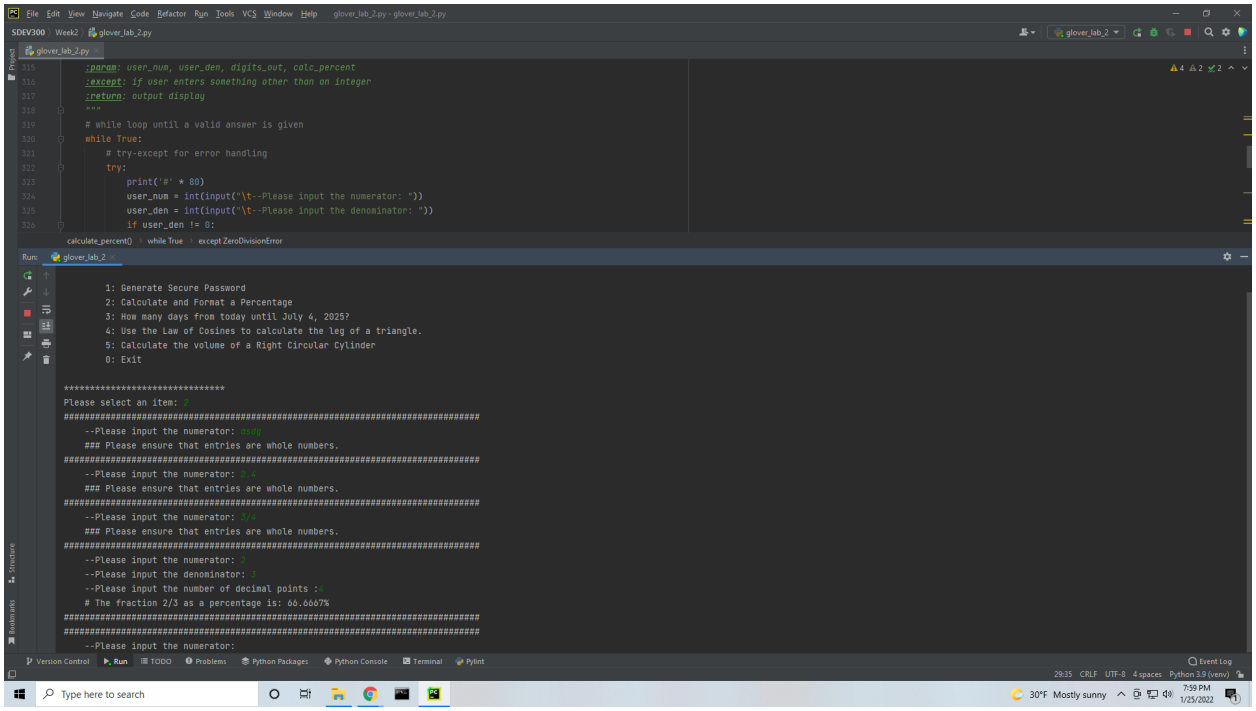

Fig. 4

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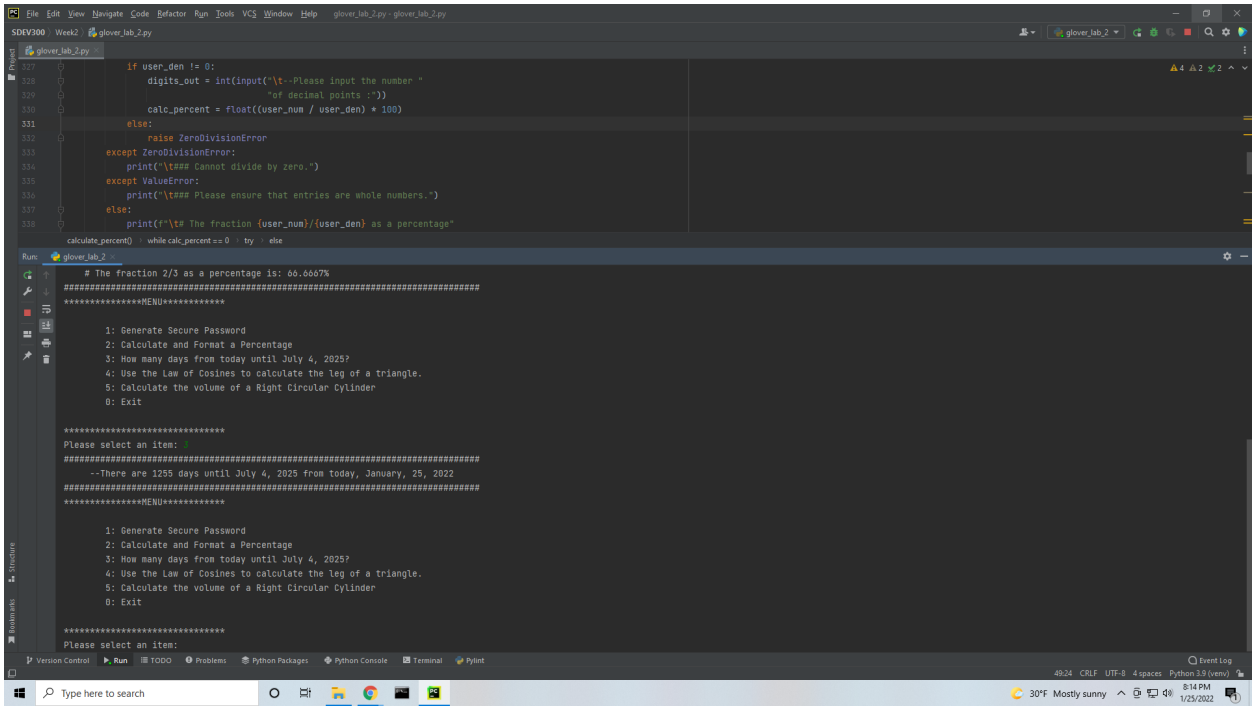

Fig. 5

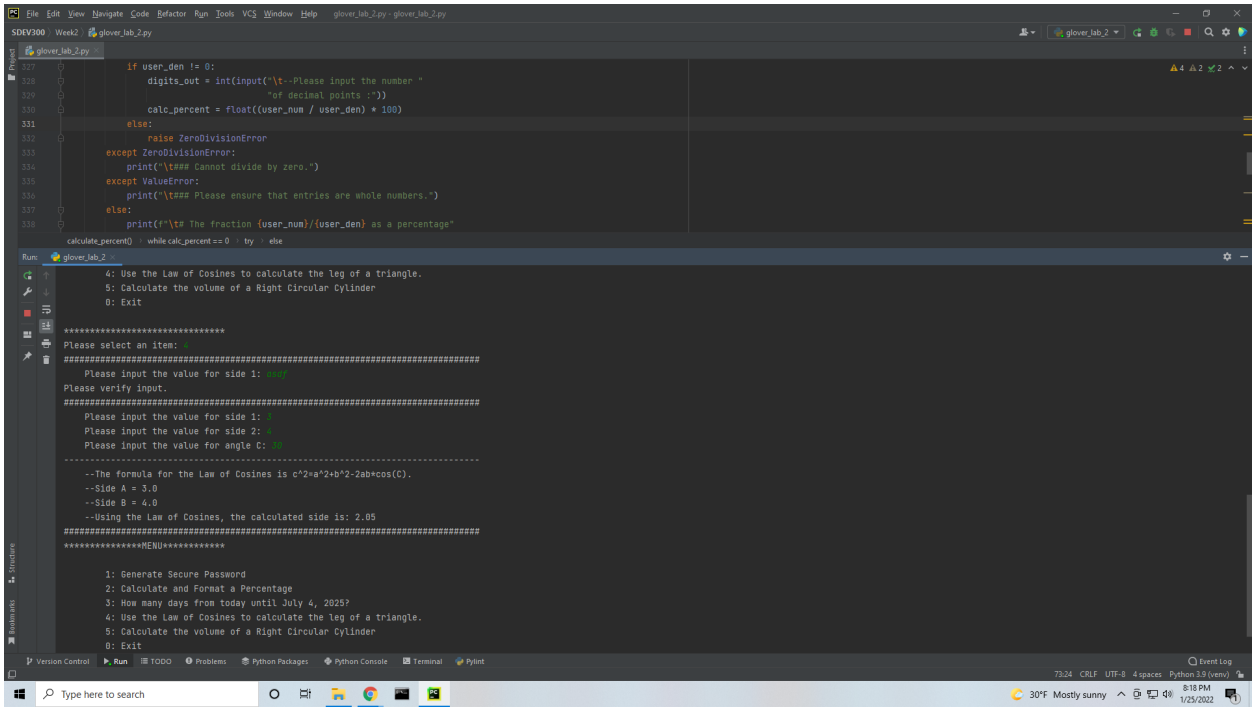

Fig. 6

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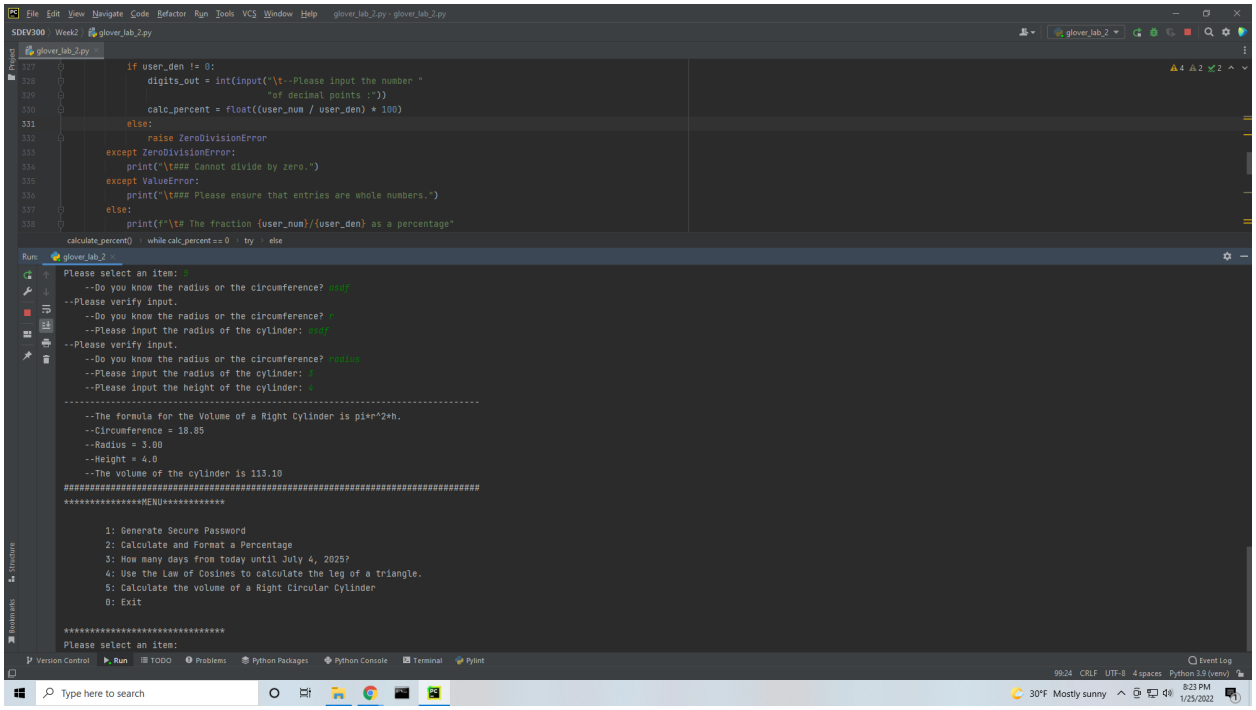

Fig. 7

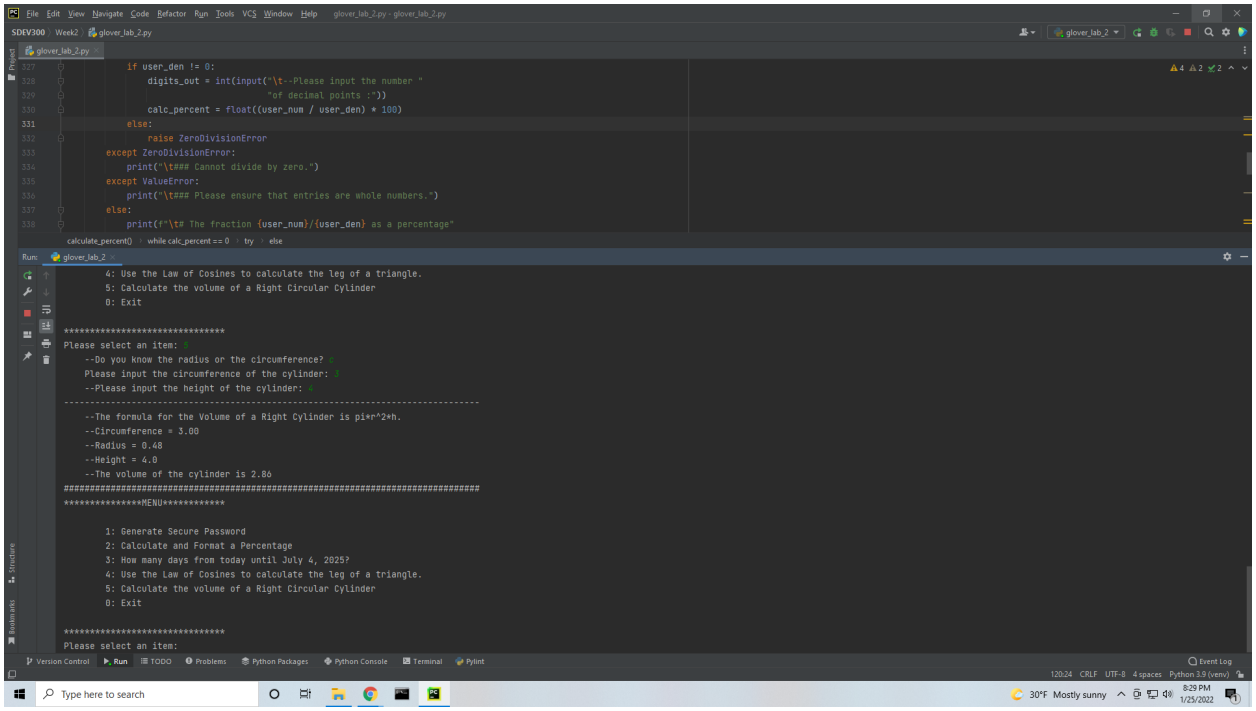

Fig. 8

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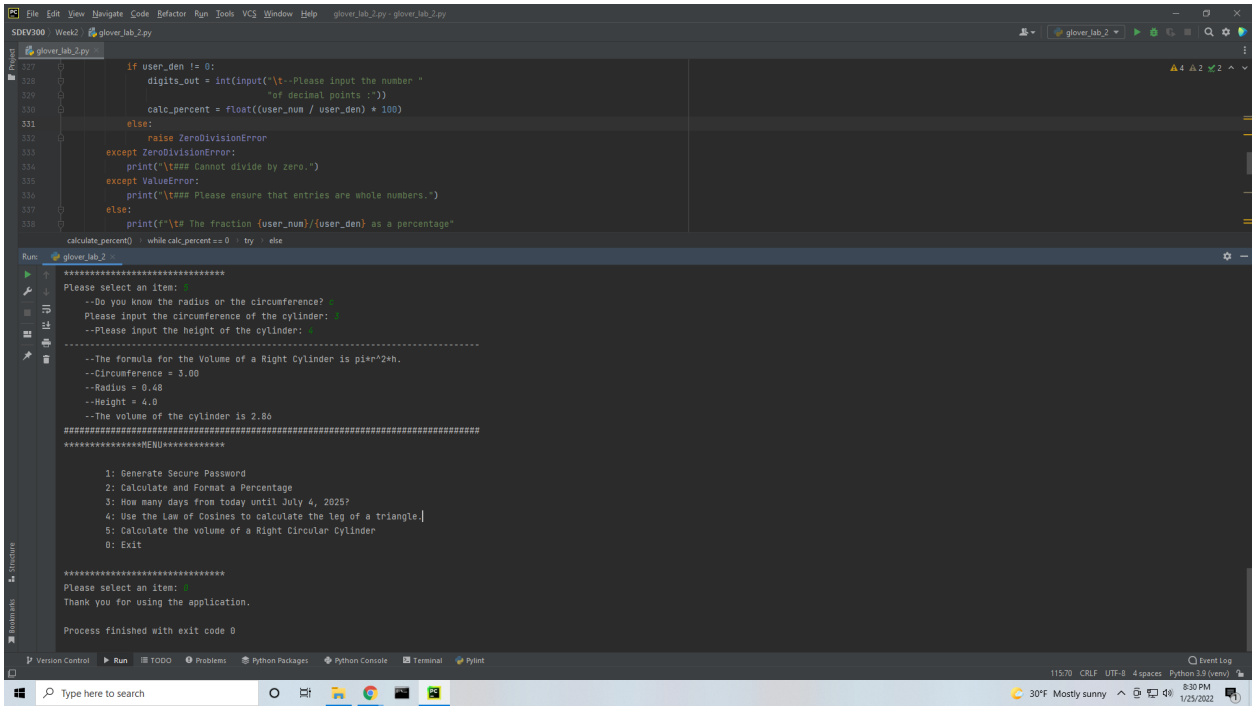
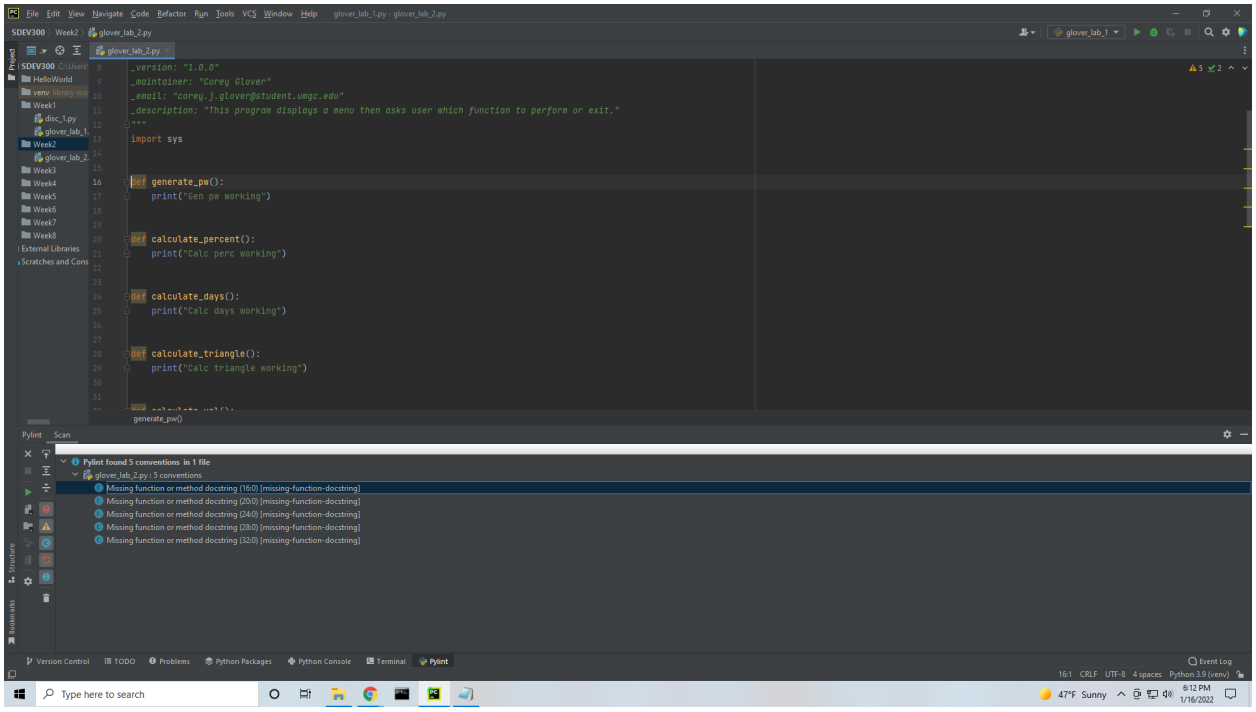


Fig. 9

Correction of Pylint with Screenshots:

Below are screenshots of pylint with information on how they were handled.



Trailing whitespace: This was corrected by backspacing to previous line, returning then letting Pycharm auto-format

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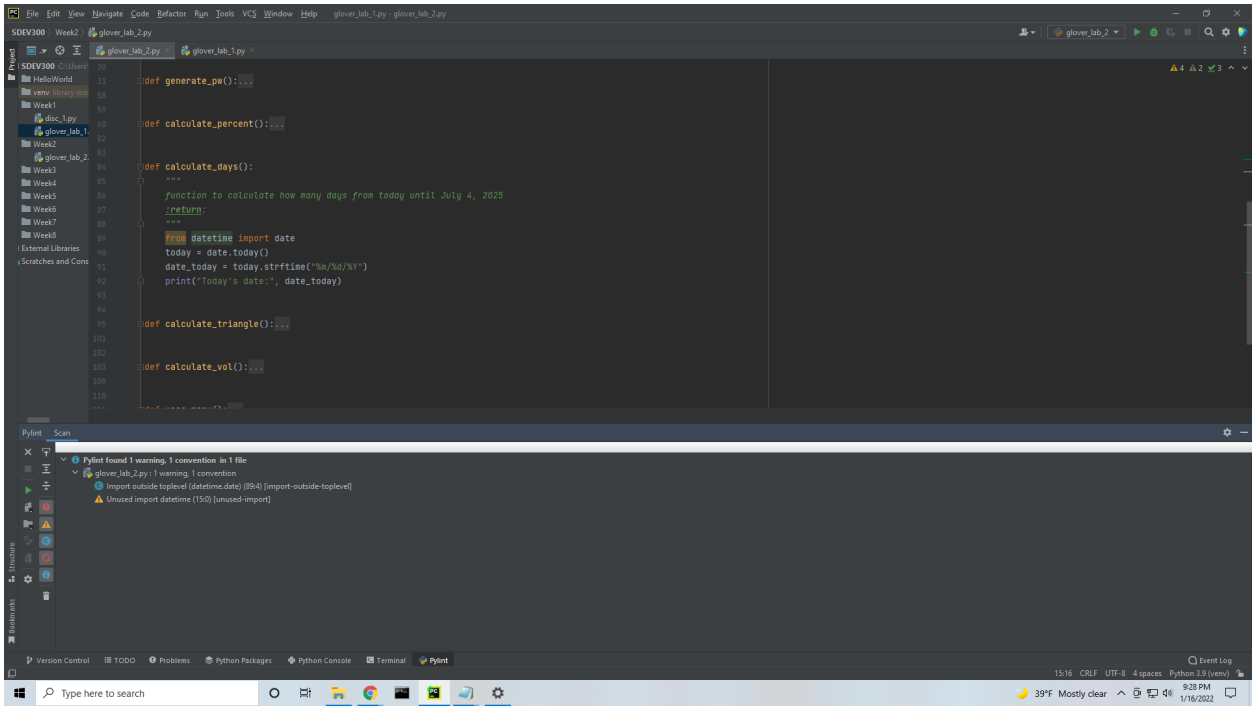
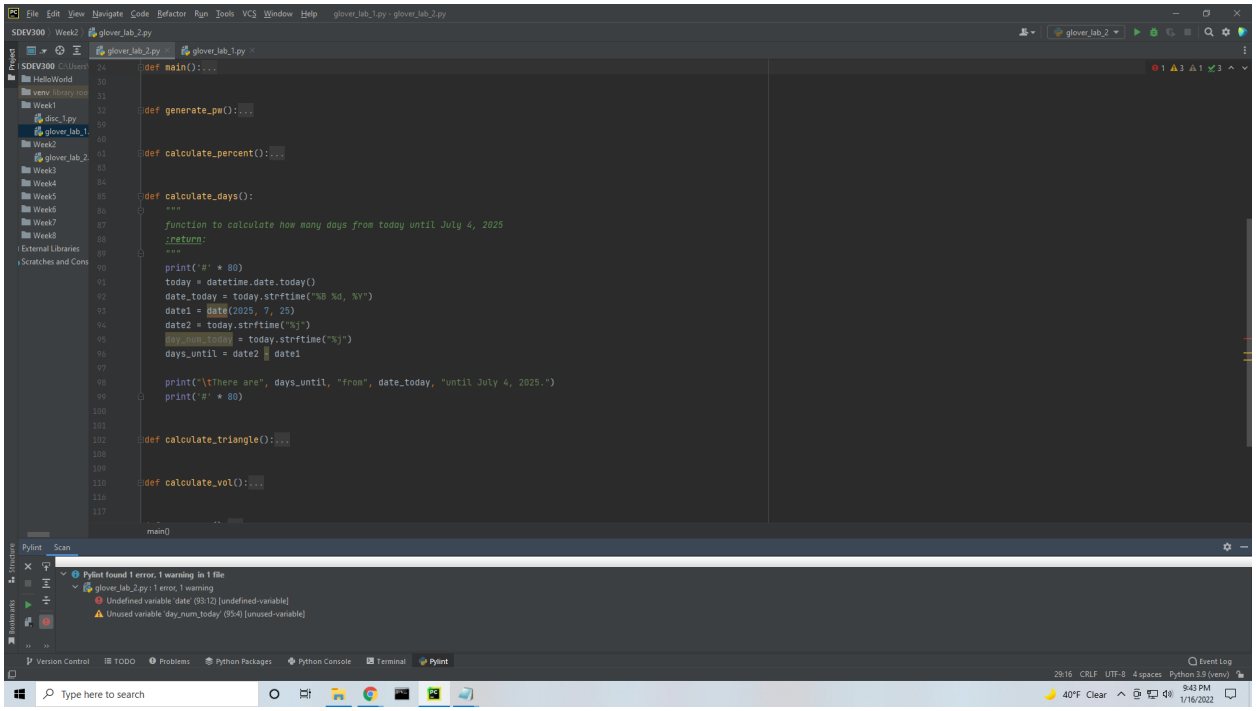


Import outside toplevel, unused import- Corrected by removing or commenting out the unused lines



Undefined variable ‘date’, unused variable day_num_today- Renamed variable day_num_today then corrected undefined date by importing date from datetime

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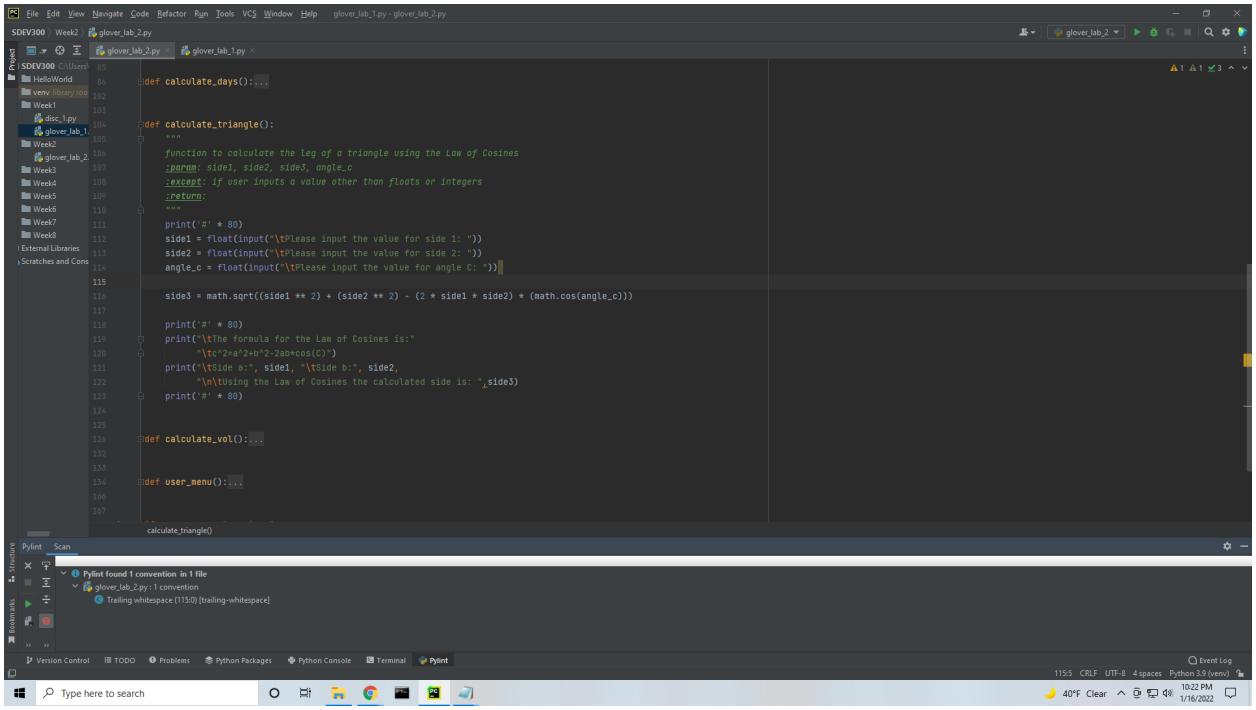
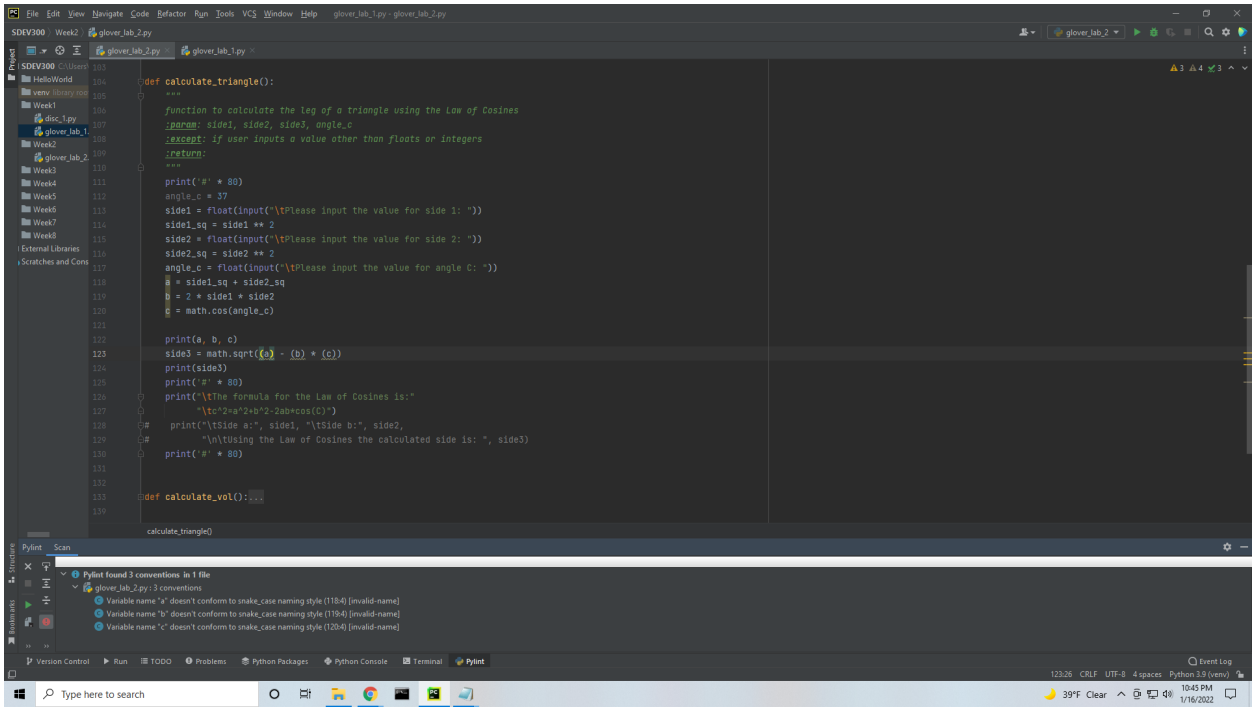


Trailing whitespace- Deleted lines back then returned until Pycharm auto-formatted



Variable a, b, c doesn't conform to snake_case: corrected by renaming variable to something that conformed to required snake_case

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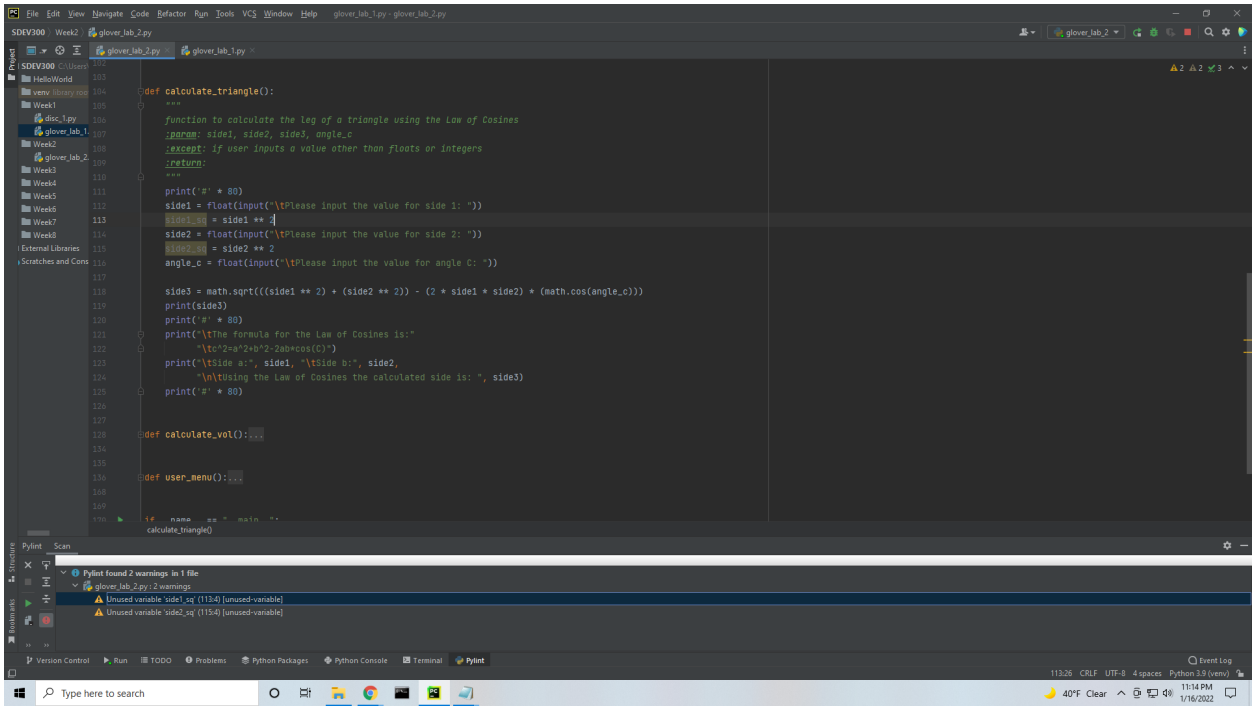
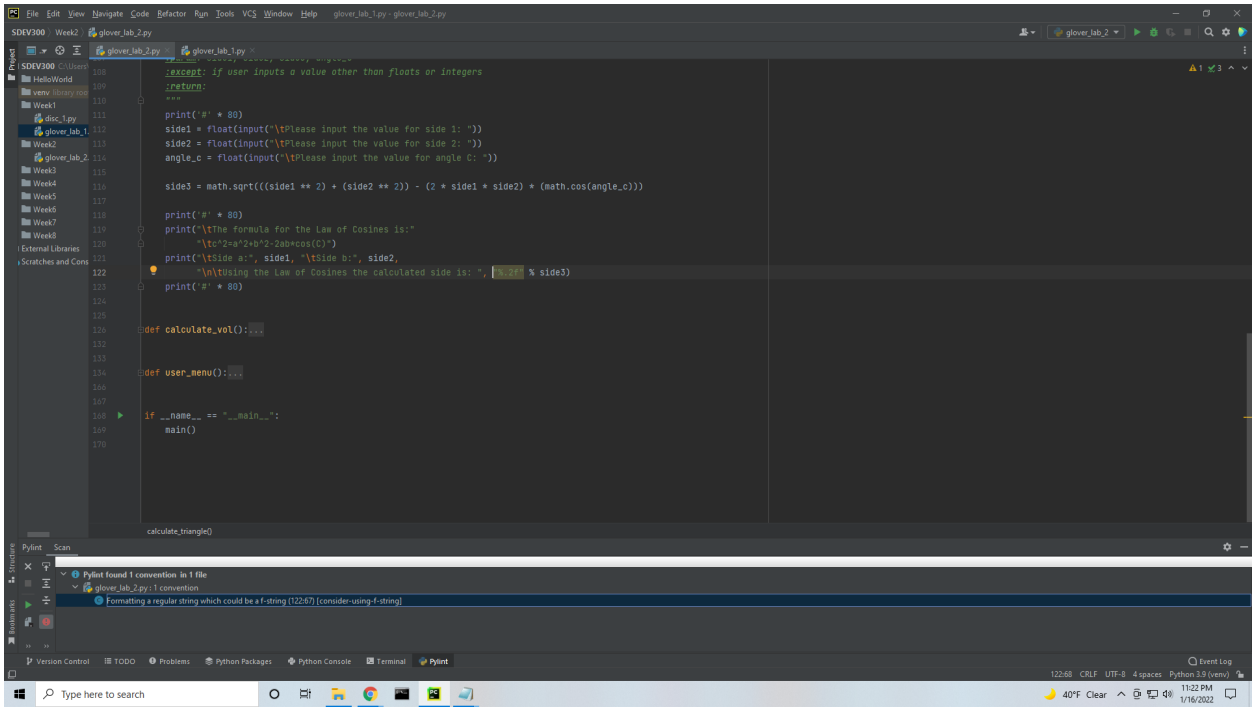


Unused variable- corrected by renaming or removing variable



Formatting a regular string which could be f-string: reconfigured string as an f-string

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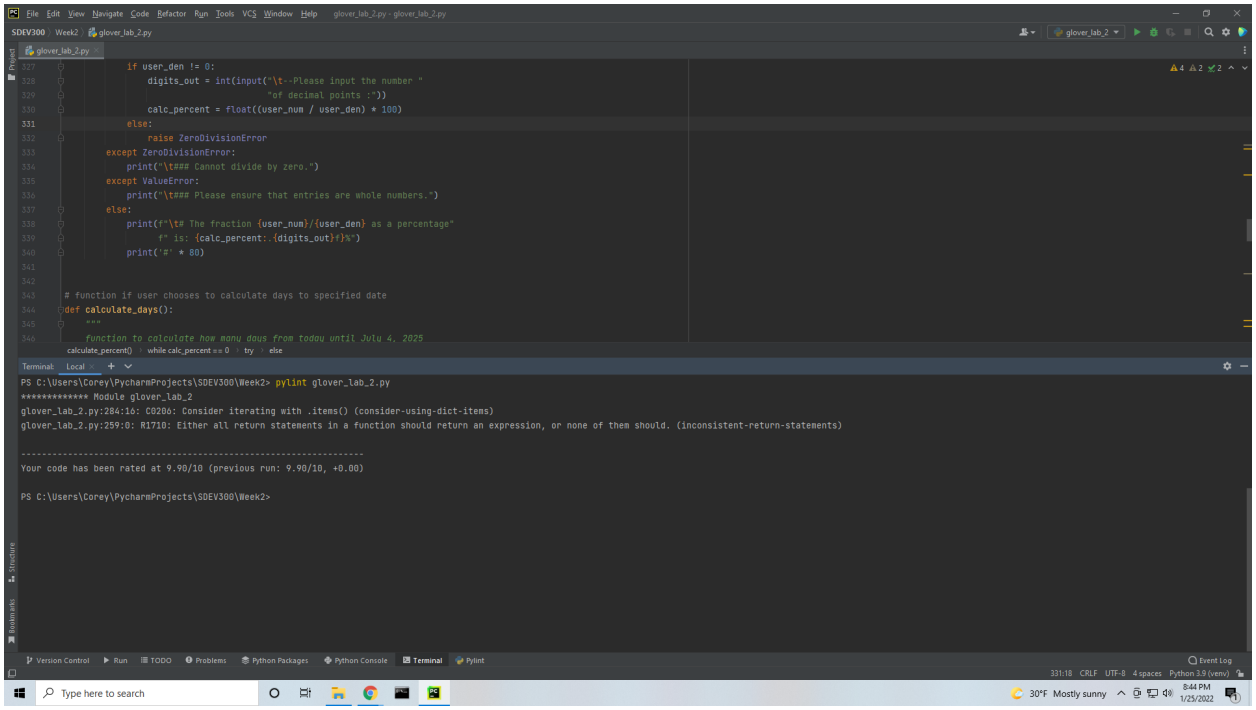

Final pylint- Unfortunately this was as close to 10 as I could get and still have the program work properly or throwing more pylint issues.