BSC – HGP- Assignment 01
Stock Trade Profit Calculator
Specification

1 Assignment Information

Course	BSCO / BSCH
Stage/Year:	3
Module	HCI & GUI Programming
Semester	1
Assignment:	1
Date of Issue:	07/10/2019
Assignment Deadline:	28/10/2019
Assignment Weighting:	10% of Module
Assignment Submission:	Via Moodle Only

2 Introduction

N.B. You are only awarded marks for what you are asked to do

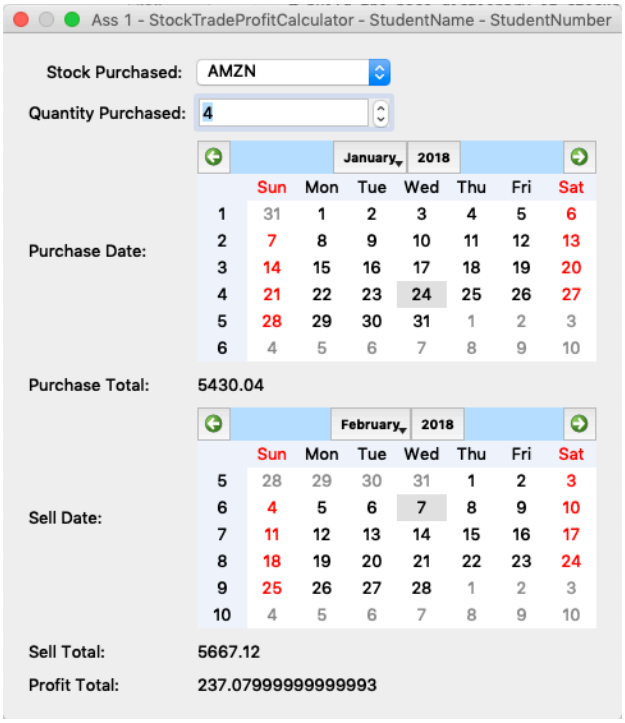
In this assignment you will be asked to produce a Stock Trade Profit Calculator application using PyQt5. The application will assist the user in determining if a profit has been made on specific stocks over a specified time period.

2.1 Required Features (high-level)

This application

- Allows the selection of the stock to be purchased
- Allows the selection of the quantity to be purchased
- Allows the selection of the purchase date
- Displays the purchase total
- Allows the selection of the sell date
- Displays the sell total
- Displays the profit total
- Allows the selection of multiple stocks if you choose to add this additional feature
- Displays additional information if you choose to add this feature

Inspiration may be obtained from the diagram on the right before you enhance the GUI so that it is more user friendly and feature rich.



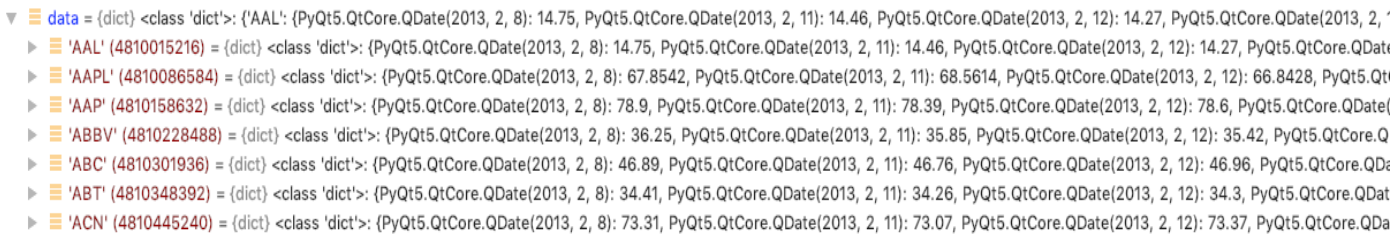
Additional Components Are Required.

2.2 Dataset

This application will use a CSV file containing 5 years of historical stock market data originally sourced from https://www.kaggle.com/camnugent/sandp500/download. It is recommended that you use the file provided on Moodle to avoid confusion. Below is a sample of this file when viewed with a spreadsheet application.

	A	B	C	D	E	F	G
1	date	open	high	low	close	volume	Name
2	08/02/2013	15.07	15.12	14.63	14.75	8407500	AAL
3	11/02/2013	14.89	15.01	14.26	14.46	8882000	AAL
4	12/02/2013	14.45	14.51	14.1	14.27	8126000	AAL
5	13/02/2013	14.3	14.94	14.25	14.66	10259500	AAL
6	14/02/2013	14.94	14.96	13.16	13.99	31879900	AAL
7	15/02/2013	13.93	14.61	13.93	14.5	15628000	AAL
8	19/02/2013	14.33	14.56	14.08	14.26	11354400	AAL

This will be processed by the provided sample code into a dictionary of dictionaries



2.2 Resources to Assist You

The following examples will be of great assistance in completing this assignment

- A Currency Converter GUI Program - Python PyQt5 Desktop Application Development Tutorial
  - GitHub: https://github.com/DarBeck/PyQT5_Tutorial/blob/master/currency_converter.py
  - An update of the py script files have been included to assist you
  - YouTube: https://www.youtube.com/watch?v=weKpTw1SjM4
  - There is a version of this in the provided template, delete before submission.
- PyQt Tutorials
  - http://zetcode.com/gui/pyqt5/
  - https://www.programcreek.com/python/example/108083/PyQt5
  - https://www.learnpyqt.com/
- Qt Documentation
  - https://doc.qt.io/qt-5/qwidget.html
- PyQt Documentation
  - https://www.riverbankcomputing.com/static/Docs/PyQt5/api/qtwidgets/qtwidgets-module.html
- Documenting Your code
  - https://realpython.com/documenting-python-code/ (you can just use # and a good explanation!)

3 Submission Format

A single file with the following details

- **Name:** FirstName_LastName_StudentNumber_Ass1
- **Compression format:** zip or rar
- **Folder Name:** FirstName_LastName_StudentNumber_Ass1
- **Folder Contents**:
  - Contains py script files or Jupyter Notebooks
  - all_stocks_5yr.csv
  - UI Design Document.doc (use template provided, submit as .doc or .docx extension)

4 Features(low-level), Marks & Penalties

The required features are listed here in detail. Failure to implement a feature will result in loss of marks. There is a degree of flexibility in the method of implementing these features. If you are unclear whether or not your proposed method of implementation is acceptable, please ask the lecturer.

				Marks Breakdown				
Section	**Subsection**	**Feature #**	**Marks**	**Present**	**Functional**	**Well Designed**	**Components**	
Application (70%)	Application Structure	1	5	2	2	1	suitable choice of main widget	
		2	5	2	2	1	stock purchased label and selection control	
		3	5	2	2	1	quantity purchased label and selection control	
		4	5	2	2	1	purchase data label and selection control	
		5	5	2	2	1	purchase total labels	
		6	5	2	2	1	sell date label and selection control	
		7	5	2	2	1	sell total labels	
		8	5	2	2	1	profit total labels	
	Additional Feature	9	30	12	12	6	Additional labels and selection controls e.g. those in https://doc.qt.io/qt-5/gallery.html	
		Subtotal	70					
Documentation (30%)	Code	10	15				Clearly Comment Code in file - Explanation of method functionality, data structures and underlying logic - Explanation of parameters of methods	kept is precise and clear, complete for all code elements, reviewprovided links for additional tips
	UI Design Document	11	15				Use template provided	include screen shots, write clearly under all headings, explain all choices no matter how basic
		Subtotal	30					
Penalties			**Decutction**				**Error**	**Reason**
			-30				Non-executable code submitted	Encourages student to build robust code. Reduces marking time.
			-20				Non-standard libraries used, only standard SDK allowed	Ensures equal workload of all students. Reduced marking time by avoiding the installation of custom librarie for specific submissions.
			-10				Wrong compressed file format (zip and rar are accepted)	Encourages student to distribute resources in easy to read formats. Reduces marking time as additional decompression apps do not need to be installed.
			-10				Wrong folder structure (see project intoduction)	Encourages students to present work in a well structured format. Reduces marking time to determine location and presence of component
							deductions for bugs	
							standard late deductions	

Each feature is awarded marks based on

- **Present**: if the feature is present in the application
- **Function**: if the feature contributes to a well working app, higher marks will be awarded for customization of the function or attributes of the widget
- **Well Designed**: if the feature is incorporated well into the application obeying basic GUI design principles.
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N.B. The elements should be clearly reported in the comments in your code and your “UI Design Document.doc” file

Widgets to consider include the following:

- CheckBox

- QRadioButton
- QPushButton
- QTabWidget
- QTableWidget
- QScrollBar
- QProgressBar
- QDateTimeEdit
- QSlider
- QDial
- QGroupBox
- QCalendarWidget
- QLabel
- QDateEdit
- QComboBox

Further information on these widgets can be found here:
https://doc.qt.io/qt-5/gallery.html

4 Other Useful Links