ATS 2024 - Final Project requirements (max 90 points):

Your task is to implement, optimize and test investment strategy in Python. The project is prepared by team of **2 students**. The final project consist of 4 mandatory elements:

[1.] project proposal (pdf format) **[10 points]**
[2.] *code in Python (jupyter extension files and .png files must be stored in one folder) [3.] *report (pdf format)
[4.] presentation (pdf format)**[10 points]** *[2]+*[3]= 70 points

Your **PROJECT PROPOSAL** (4-5 slides) should contain:

1. short introduction
2. data set description
3. short strategy description (incl. conditions how trading signals are generated)
4. table, which presents distribution of the work among the team members (one person per task). Remark: each team member must participate in the coding part of the project.Please deliver all projects files via Moodle.

Your **CODE** should be able to:

1. load daily data from text csv file or download it directly from internet. Time series length: min. 6 years.
2. divide input data into training and testing set
3. generate at least one type of trading signals (for example buy signal)
4. trade basing on generated buy/sell signals - each student in team should implement own trading strategy.
5. calculate standard performance/risk measures (**Sharp Ratio(Total/Annualized)**) for both training and testing set.
6. optimize the strategy parameters on the training set using one of the measures above
7. calculate the total value of portfolio (cumulative return) for both training and testing set
8. present the total number of trades

Students who will present solution based on use of Alpaca trading platform (or other free trading platform) will obtain +20% from the final project [Not mandatory]

Project assumptions (if you want to change them please ask the instructor first):

- trading costs should be calculated as % of transaction value (parameter given by user)
- short selling (allowed if necessary)

Your **REPORT** (3-4 pages) should contain eight sections:

1. short introduction
2. literature review
3. data set description
4. methodology - description of the chosen trading strategy/strategies
5. results
6. conclusions
7. references
8. table, which presents distribution of the work among team the members (one person per task). Remark: each team member must participate in programming part.

Your **PRESENTATION** (max 5 min) should contain:

1. short introduction
2. literature review
3. data set description
4. methodology
5. results
6. conclusions
7. references
8. table, which presents distribution of the work among the team members (one person per task). Remark: each team member must participate in programming part.

FINAL PROJECT DELIVERY + DEADLINES

Final Project:

- **8th of June 2024 [23:59]** – deadline for final project proposal submission (delivery via email). **Final project proposal must be approved by instructor. Students are encourage to send proposals ASAP to start implemenation works earlier.**
- **14th of June 2024** – students presentations during the extra class meeting. [Presenation should contain approved Project proposal + Progress of work on the project] [Mandatory]
- **16th of June 2024 [23:59]** – early deadline for the final project and presentation submission All projects files should be delivered via Moodle.[+10% points for early submission] [Not mandatory]
- **30th of June 2024 [23:59]** – final deadline for the final project and presentation submission All projects files should be delivered via Moodle. [Mandatory]

Final Project Defences:

16th of June 2024 [time TBA] - project defenses for students who will pass final test on 14th of June and who will have final project done in min 50% [Not mandatory]

1st of July 2024 [time TBA] - project defenses for the other students [Mandatory]

Final Test:

- **14th of June – final test (early attempt)** [Not mandatory]
- **27th of June – final rest (first attempt)** [Mandatory for students who will not pass in early test attempt]