Python project (physics students)

In this project you will combine the math taught in this course with a bit of Python programming, to do a project regarding The Special Theory of Relativity.

You will work in groups and hand in solutions together. Jupyter notebooks have been prepared for the exercises by Christian Bierlich and modified by Bjorn Linse. The introduction and requirements are written in individual cells. You are supposed to fill in your responses in your own cells and then hand in the notebook.

Project introduction
The project will be introduced during the lecture on January 23rd.

Groups and supervision
You will work in groups of 3-4 people. You are supposed to plan and carry out your work yourselves, within each group. All members of the group must participate, and be able to understand all parts of your solutions.
The teaching assistant will be available for discussions during office hours, which will be provided later via private communications.

Preparations
Between January 23rd to 27th, you are supposed to:
- Split yourself into groups.
- Write an email to chen@astro.lu.se specifying the group members and email addresses.
- The teaching assistant will write an email giving more information on how to arrange for discussion sessions.
- Download the exercise from the course web page and get started.

Deadlines
The project is split into three parts with separate deadlines. They are:
First part (Galilean transformations and aberration of starlight): Feb. 10th by 12:00.
Second part (Derivation of the Lorentz transformation): Feb. 24th by 12:00.
Third part (Relativistic aberration): Mar. 3rd by 12:00.
All parts of the project are supposed to be handed in electronically to chen@astro.lu.se.

Discussion
When the last part of the exercise is finished, your group will be scheduled a small meeting with your teaching assistant, in which all the exercises will be went through completely. This is in order to ensure that everyone in the group participates, and that everyone understands their group solutions. The exercise is graded as pass/fail based on your solutions and the final discussion.

Contact
For further questions, problems or concerns, please contact: Chen Fanyao (chen@astro.lu.se).