Progress Report

Simulation Course

Project Title: Prandtl-Meyer

Group Number: 5

Group Members: León Prieto and Verónica Sastre

Version	Deliver before end of session	Emphasis
0	11/11	Initial planning
Period 1	1811	Description of the problem and its relevance. Why this simulation is important?
Period 2	25/11	Description of the maths involved in the problem Intended advanced work
Period 3	2/12	Software design: describe objects, databases, method for visualization of results
Period 4	9/12	
Final	16/12	Conclusions

Project features

Provide a list of the features of your project. In other words, what are the capabilities that will be available to the end user. Describe each capability, indicate its importance (0 = not important, 5 = very important) and try to estimate how difficult its implementation is going to be (0 = very easy, 5 = very hard). Example: [save results, save the simulation results into a text file, 4, 3].

Feature	Description	Importance	Difficulty
Topic introduction	What our simulator represents	5	0
Selection of the simulation parameters	The user can select what will be the simulation parameters (P, p, T, M, R, gamma, E, theta)	5	2
Selection of the grid	The user can select what will be the simulation grid (P, p, T, M, R, gamma, E, theta)	5	2
Calculate	The data is calculated and showed in a grid	5	5
Data plot	The data is plotted	5	3
Restart	Restart the simulation	3	2
Save simulation	Save the simulation results into a text file	2	3
Open simulation	Open the simulation form an existing text file	2	3
Tables with results	The data is tabulated	5	2
Comparison with the Anderson tables	Comparison the results with the Anderson results	4	1
Error computation	Comparison of the error with the analytical solution	3	1

General planning

Decompose the whole project into phases (for instance, math development, research on visualization methods in WPF, report writing, etc.).

And assign a block of time to each phase. Please take into account the due dates for the different products of the projects (code, report and oral presentation).

Phase	**Block of time**
Research of the phenomenon	05-11-2021
Math Development	13-11-2021
Math Development (Matlab)	14-11-2021
Math development verification	16-11-2021
Math Development (WPF)	18-11-2021
Interface simulation controls	28/11/2021
Implementations (Save and load)	30/11/2021
Implementations (Plots)	05/12/2021
Revision and robustness	20/12/2021
Code comments	20/12/2021
Code delivery	21/12/2021
Report writing	13/12/2021
Oral presentation	16/12/2021

Planning for first week

Taking the previous lists and the project deadline into consideration, start thinking on what needs to be done first. Fill the following table with the list of tasks that you intend to do during the next week. Some example tasks may consists in studying the theory of the phenomenon you intend to simulate, developing the equations, implementing a feature, testing, creating documentation, etc. Indicate the team members responsible for each task and the date it should have been completed.

Task	**Team member(s)**	**Due date**
Research of the phenomenon	León & Verónica	05-11-2021
Math Development	León & Verónica	13-11-2021
Math Development (Matlab)	León & Verónica	14-11-2021
Math Development verification	León & Verónica	16-11-2021
Math Development (WPF)	León & Verónica	18-11-2021

Period 1: 11 November – 18 November

Activities performed during this period:

Provide a brief summary of your activities. What are the main achievements and visible results?

This week, we have understood the concept of the Prandtl Meyer Expansion and also, we have done the math development using Matlab. Moreover, we have started the math development verification.

Considerations:

Discuss your progress with respect to the planned tasks for this period and with respect to the overall project, the main obstacles encountered during this period and what decisions have been made.

We have not reached the objectives of this week. The principal reason is the difficult on the math development and its verification.

Planning:

Indicate the tasks you intend to do during the following week.

Task	Team member(s)	Due date
Math Development verification	León & Verónica	19-11-2021
Math Development (WPF)	León & Verónica	18-11-2021
Interface simulation controls	León & Verónica	28/11/2021

Period 2: 18 November – 25 November

Activities performed during this period:

Provide a brief summary of your activities. What are the main achievements and visible results?

We have done the MATLAB code and the math development verification using the Anderson Book.

We have obtained coherent result for each primitive variable but they oscillate a lot through the columns and we are looking for the reason that causes it.

Also, we have done the report with all the math development.

Considerations:

Discuss your progress with respect to the planned tasks for this period and with respect to the overall project, the main obstacles encountered during this period and what decisions have been made.

We have not reached the objectives of this week. The principal reason is the difficult on the math development and its verification. We have done a huge improvement in the math development but we want to continue the verification in order to have the correct final results.

Planning:

Indicate the tasks you intend to do during the following week.

Task	Team member(s)	Due date
Math Development verification	León & Verónica	26-11-2021
Math Development (WPF)	León & Verónica	27-11-2021
Class structure (WPF)	León & Verónica	28-11-2021
Interface simulation controls	León & Verónica	02/12/2021

Period 3: 25 November – 2 December

Activities performed during this period:

Provide a brief summary of your activities. What are the main achievements and visible results?

We have finished the math development verification and we have done all the code in WPF.

Also, we have developed the visual interface and its principal simulation controls.

Moreover, we have done the plots of each variable.

We have done also the description of the software design: classes, forms, result strategy and challenge.

Considerations:

Discuss your progress with respect to the planned tasks for this period and with respect to the overall project, the main obstacles encountered during this period and what decisions have been made.

This week, we have achieved all the planned tasks. As already said, the most difficult part for us was to develop the math involve in the project and also do all the verification in order to get coherent results due to the complexity of the physic concept.

Planning:

Indicate the tasks you intend to do during the following week.

Task	Team member(s)	Due date
Implementations (Save and load)	León & Verónica	09/12/2021
Revision and robustness	León & Verónica	09/12/2021

Period 4: 2 December – 9 December

Activities performed during this period:

Provide a brief summary of your activities. What are the main achievements and visible results?

Considerations:

Discuss your progress with respect to the planned tasks for this period and with respect to the overall project, the main obstacles encountered during this period and what decisions have been made.

Planning:

Indicate the tasks you intend to do during the following week.

Task	Team member(s)	Due date

Final report: 9 December – 16 December
Activities performed during this period: Provide a brief summary of your activities. What are the main achievements and visible results?
Considerations: Discuss your progress with respect to the planned tasks for this period and with respect to the overall project, the main obstacles encountered during this period and what decisions have been made.
Final considerations: Discuss your performance as a team. What did you do well? What was wrong? What should be improved next time?