Nozzle Flow Analyzer Project

Agile Tracking Sheet

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4/7/2023

CS 225, Spring 2023

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Table 1: User Story Summary

User Story ID	User Story	Completeness Criteria	Effort Estimate (hours)	Priority	Worked in Sprint (Estimated)
1	As a developer I want to be able to test my software.	All classes exist with all. attributes. All methods exist. but are not yet functional.	8	1	1
2	As a developer I want the software to properly use the proper isentropic equations based on the nozzle/tube type(nozzle/tube type referred to as node).	There are methods for determining pressure, area, Mach, temp, and their associated static, values, and they are iterative. Each nozzle type extends the flow node class	7	3	1
3	As a developer I want the software to use user input data on pressure, Velocity and temp to determine the relationships throughout each flow section	There is a get user input method to collect data, which can be stored as doubles.	1	2	1
4	As a developer I want the software to determine if the conditions are met for a shock to form.	Within the methods for isentropic flow relations there is an iterative check to see if the Mach and pressure relations reach the proper conditions	2	4	1
5	As a developer I want the software to use the proper normal shock relation equations if a shock is formed.	There is a method that is called if a shock is true that splits the node into two parts, isentropic before shock and isentropic after shock.	3	5	1
6	As a developer I wish to keep the user informed of inaccuracies, and as such if Mach is detected to be above 5 then to relay that information to the user.	The same iterative check in the isentropic flow for checking for shocks can also check to see if the Mach number exceeds the flow relations and becomes hypersonic.	1	8	2
7	As a developer I want each of the selected nodes to be modular, so the ending flow properties of one node can become the initial flow properties of another.	There is a method that is called upon that if there is two nodes connected it just sets all the exit values equal to inlet values like: EX: Pe=Pi	1	7	2

8	As a developer I want the final node to simulate the exiting flow properties, one of seven options ranging from perfectly expanded flow to choked flow, etc.	The program has a method that iteratively goes through the 3 of the 7 exit conditions, and if it matches the 3 set exit conditions it displays one of those, and if is in between/outside, it displayed one of the exit conditions that can occur at a data range.	6	6	2
9	As a developer I want the nodes and any present shocks to be displayed graphically	A GUI exits that displays the flow nodes, shocks and exit shocks/conditions.	6	12	3
10	As a developer I want the flow data to be exportable as a CSV, or xls	An export data option is available for the user to send their data to different file types	2	9	2
11	As a User I want the user's node configuration to be savable, and reopenable.	An option for the user to save their data, and setup is present.	2	13	2
~~12~~	~~As a User I want the ability to input information about the flow, such as pressure, area relations, etc. in a manner that may not align directly with just the entrance and exit conditions.~~	~~Within a GUI the user can create places for the input of what would be in a real-life application "data collection points" but here are just input location~~	~~5~~	~~15~~	~~4~~
13	As a User I want the ability to graphically choose the order of nodes.	A GUI exits that the user can select flow nodes and snap them together in.	3	11	3
14	As a User I want to see what mathematical and thermodynamic assumptions were made through each portion of the flow.	The Program lists in the GUI where Isentropic relations where used, and where normal shock relation assumptions where used	1	10	2

Table 2: Sprint Work Summary

Sprint	Backlog	In Work This Sprint	Completed This Sprint
1	1-14	1-5	1-3,5
2	4,6-14	4,6-8,10,11,14	4,8
3	4,6-7,9-14	6-13	7,9,13
4	6,10,11,14		

Table 3: Weekly Remaining Effort Estimate (Burn Down Chart)

	Start*	Mar 20	Mar 27	Apr 3	Apr 10	Apr 17	Apr 24	End
Planned	49	39	35	30	26	18	8	0
Actual		32	16	20				
* Start date of Mar 13 is optional, as it is the beginning of Spring Break. You may treat Mar 20 as the start date.								