VANIER
CÉGEP/COLLEGE

Interactive Wave Physics Simulator

Team Project Proposal

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420-SF3-RE
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I. Task Description

Our project, Interactive Wave Physics Simulator, is an application which aims to develop an interactive application that demonstrates various types of waves. The purpose is to provide an educational tool for students to understand better the concept of waves as it is also one of our program course for this semester.

Users will be able to modify parameters (frequency, amplitude, wavelength, etc.) in real time and visualize waves equations and their mathematical relationships. Thus, the application is centered in the domain of physics simulations.

Functionality

- Simulate and display different types of waves (e.g. non-damped, damped, standing, traveling).
- Allow users to adjust wave parameters and instantly observe effects.
- Display equation and graphs relating to the simulation.
- Export visuals for reports or presentations.

II. Interface Visualization

TODO

III. Proposed Implementation Approach

Technical overview:

- Programming language: Java 22
- Framework: JavaFX for GUI / Visualization

Project Structure:

- ***TBD***

Libraries and Tools:

- JavaFX for GUI and visualization
- ***TBD***

IV. Trello

We will be using Trello to plan and track our tasks during the development process. Team members will be assigned to specific tasks and will update the sstatus on Trello as members progress.

Trello Board Link

https://trello.com/b/QBSKjbH8/project

V. Version Control (GitHub)

We will be using GitHub for version control and each team member will review the work before merging. The repository owner does not mean to be the one who does the most work.

GitHub Repository Link
https://github.com/Cloumy074/TeamProject-F25.git

VI. References

- OpenStax, University Physics Volume 1
- Macmillan Learning, Physics for Scientists and Engineers 6e
- Document Template by hzkonor on Typst