LiqSim

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Authors and version

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Version: pre-prod: 0.0.0.1

Introduction

Project purposes and description of the modeled physical phenomenon

The movement of a body in a liquid provokes a change in the surface of the liquid and the kinetic properties of the body. The aim of the project *LiqSim* is to study the phenomena described above under various initial conditions

Used tools

- *Python* 3.11
- *matplotlib* 3.9.3
- *scipy* 1.14.1
- *numpy* 2.1.3
- $\LaTeX$
- *git*2.47
- *https* : *//github.com/*
- *GitHubDesktop*
- *PyCharm* 2024.3

General description of the project and possible alternatives

No code to review and discuss

Requirements

Functional requirements

- movement of solid sphere in liquid, liquid's surface changes (preferable: animation in 3D)
- dependence of kinetic impulse, distance, velocity and acceleration on time (plots of modulus of these quantities and their projections on XYZ on time. Dependence of energy of system on time
- following events and dependences with different solid objects

Non-functional requirements

- preferable: input velocity/distance/acceleration dependence on time in new window with LaTeX code
- preferable: input initial conditions in new window

Work shedule and deadline

Days	Aim
Week 1 (4.XII.2024 - 11.XII.2024)	Making theoretical model. Creating abstract class for solid objects and class for solid sphere
Week 2 (11.XII.2024 - 18.XII.2024)	
Week 3 (18.XII.2024 - 25.XII.2024)	
Week 4 (25.XII.2024 - 01.I.2025)	
Week 5 (01.I.2025 - 08.I.2025)	
Week 6 (08.I.2025 - 15.I.2025)	
Week 7 (15.I.2025 - 22.I.2025)	Final features and final testing
22.I.2025	DEADLINE & presentation

All versions could be found in repository
https://github.com/Uki-coder/LiqSim

Literature

[1] *https://docs.python.org/3.11/*
[2] *https://matplotlib.org/stable/*
[3] *https://docs.scipy.org/doc/scipy/*
[4] *https://numpy.org/doc/stable/index.html*