(j)edit

an editor which allows interactive exploration of the properties of elementary functions in the computing environment IPython/Jupyter

OVERVIEW

system purpose/recap

interactive application

education tool

mathematical analysis

visualization tool

numerical computing

jupyter notebook application

technical overview

coding language

Python 3.7.4

libraries

Numpy

Scipy

matplotlib

ipywidgets

environment

Anaconda

Jupyter Notebook

modules overview

analysis module

computing. algorithms. plotting. function management.

gui module

main board. outputs. menu. observing. logger.

settings module

configuration interface. yaml loading.

runner module

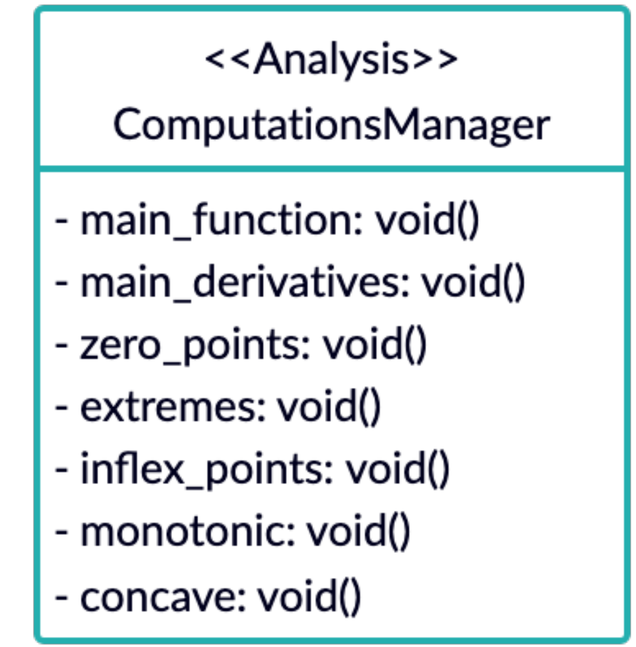
software running. task management.

MODULES

analysis module

computing. algorithms.

- recalculating functions based on user input
- derivatives
- roots (zero points) – Newton, Halley, Secant
- local extrema (using derivatives)
- inflex points (using derivatives)
- monotonic intervals (using derivatives)
- concave intervals (using derivatives)

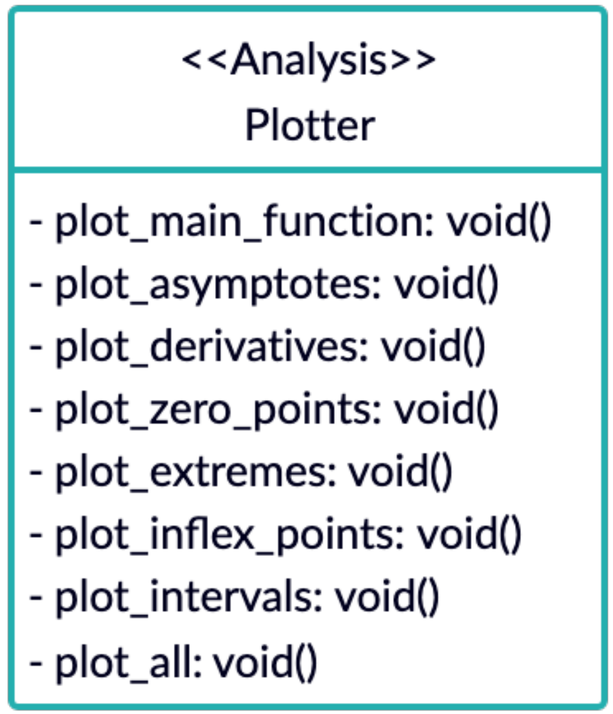


MODULES

analysis module

graph plotting.

- matplotlib
- plotting parts of graph based on user choice

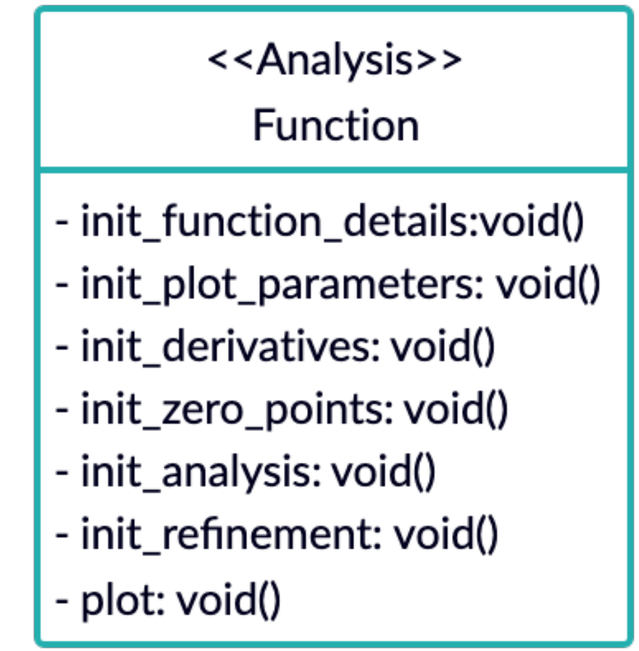


MODULES

analysis module

function management.

- class Function
- class Manager
- loading user data
- preparing data to plot
- updating data/plot
- interface for GUI module

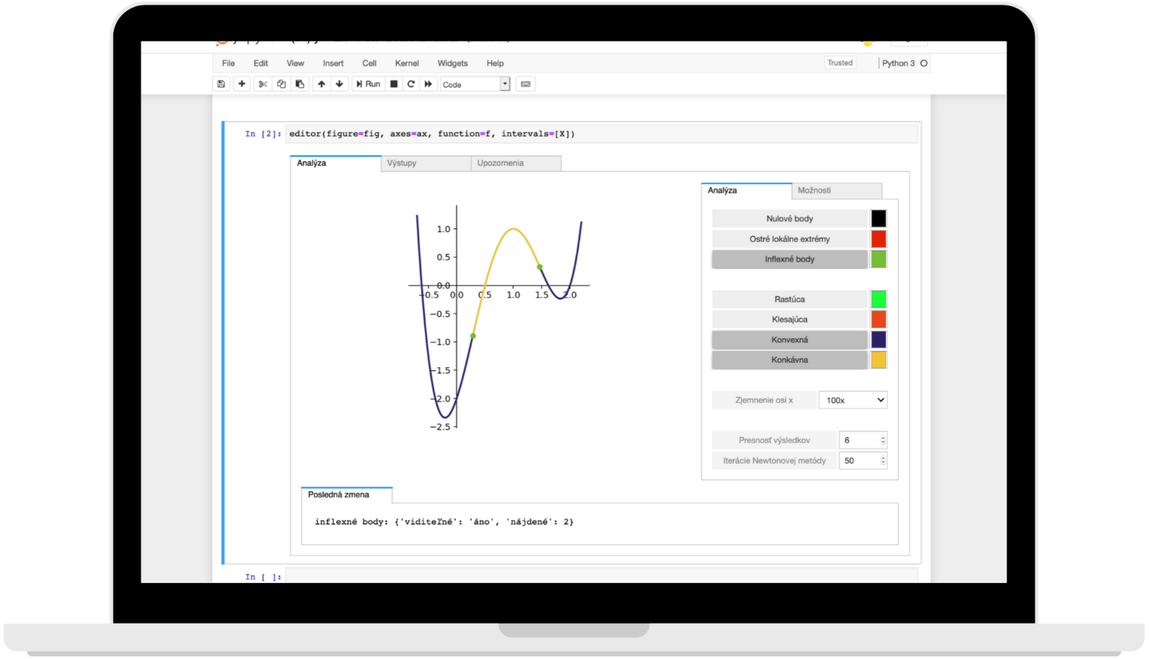


MODULES

gui module

main board. tabs. outputs. menu.

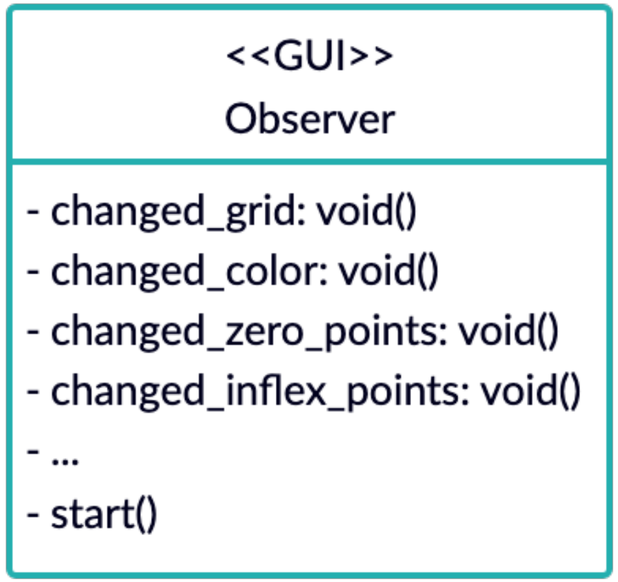
- ipywidgets
- main board divided to tabs
- main menu divided to tabs
- interactive elements
- outputs – plot, logs, warnings
- logic



gui module

observing.

- class Observer
- changed_ methods for observing
- saving user actions
- handling next steps

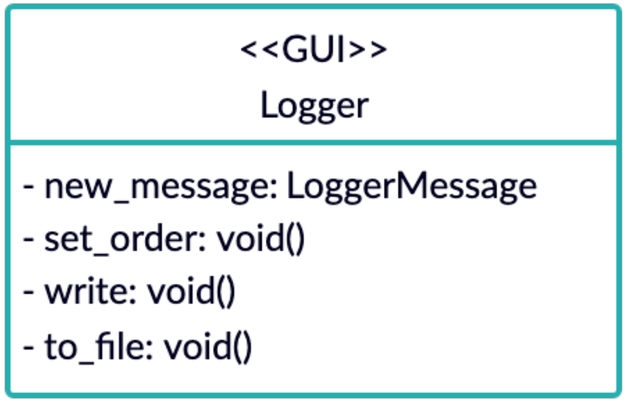


MODULES

gui module

logging. printing.

- class Logger, LoggerMessage, LoggerStack
- saving information about user actions
- saving calculated values
- saving warnings during calculations
- printing to output
- exporting txt/JSON

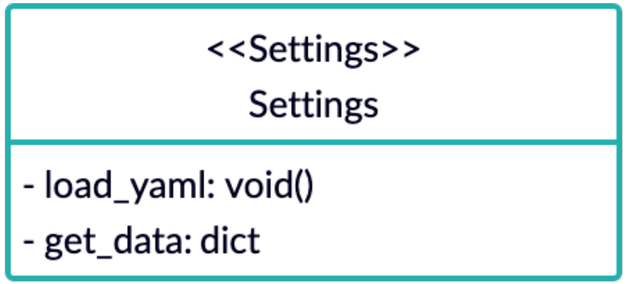


MODULES

settings module

configuration interface. yaml loading.

- configuration file YAML
- loading configuration file
- interface for configuration

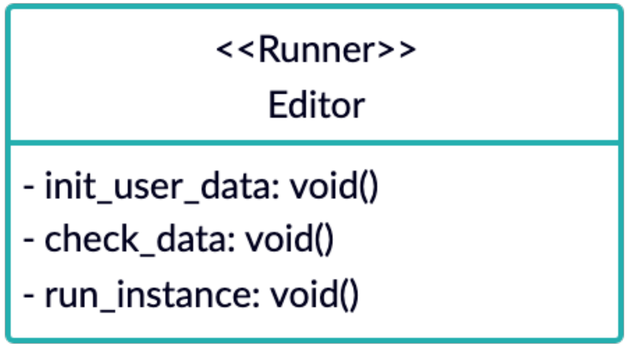


MODULES

runner module

software running. task management.

- running Editor instances
- loading and checking user data
- loading program elements



thank you for your attention