

SORTING VISUALIZER

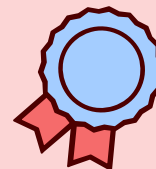
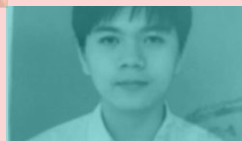
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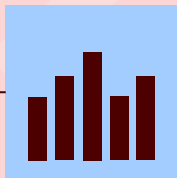
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Thien Trang
20194459



Merge Sort

Selection Sort

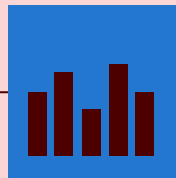
Shell Sort



Selection Sort

PROBLEM

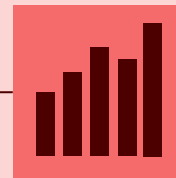
Explaining and
visualizing different
sorting algorithms



Merge Sort

Design

Design an UI for the
problem with
different features



Shell Sort

TARGET

Help users have a
better insight about
how algorithms work

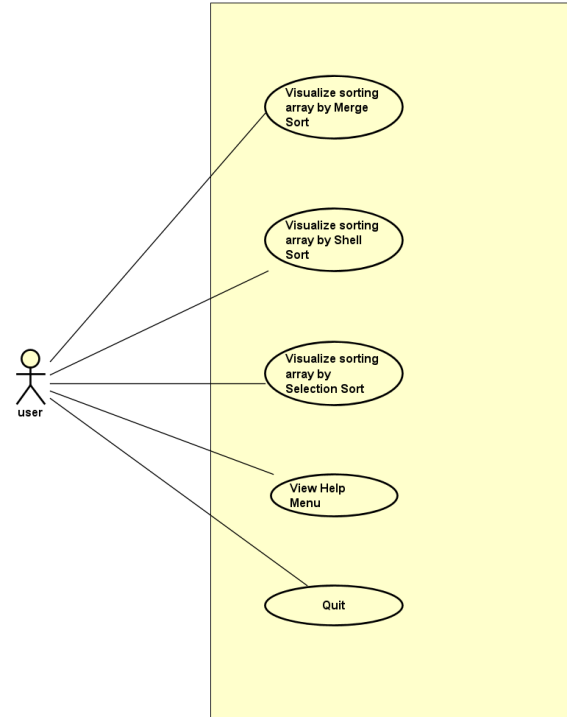
USE CASE DIAGRAM

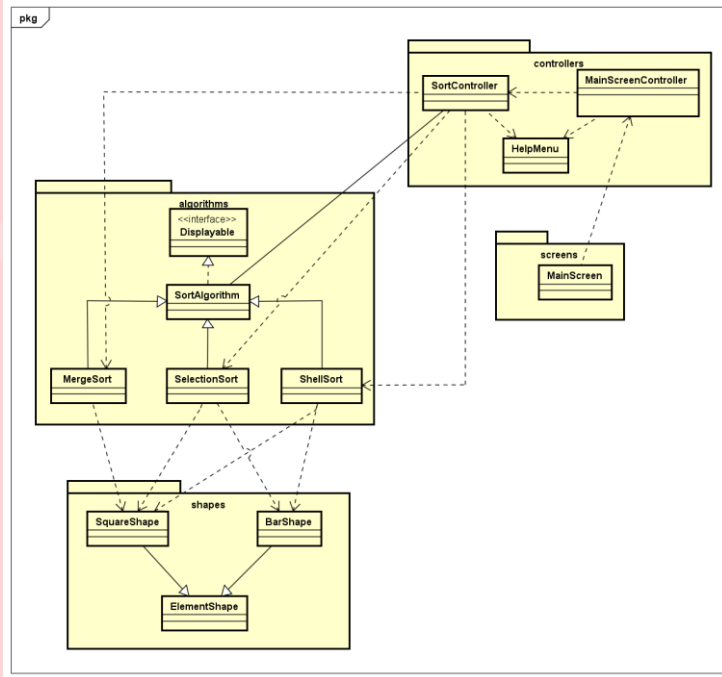
Users can start visualizing by selecting a sort type

- Take all user command from the GUI
- Notice the user if there is anything wrong with his input
- Run the designated algorithm
- Run/Reset the visualization based on user command.

Users can view the help menu

Users can quit the program





CLASS DIAGRAM

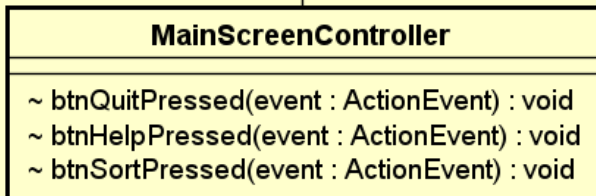
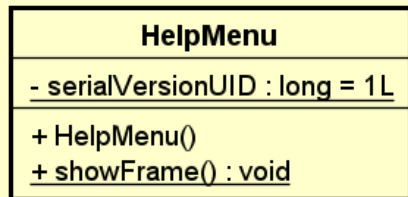
Package “algorithms”: store 3 sorting algorithms for visualizing, and an abstract class **SortAlgorithm** to store common operations, attributes

Package “controllers”: store all the screen controllers

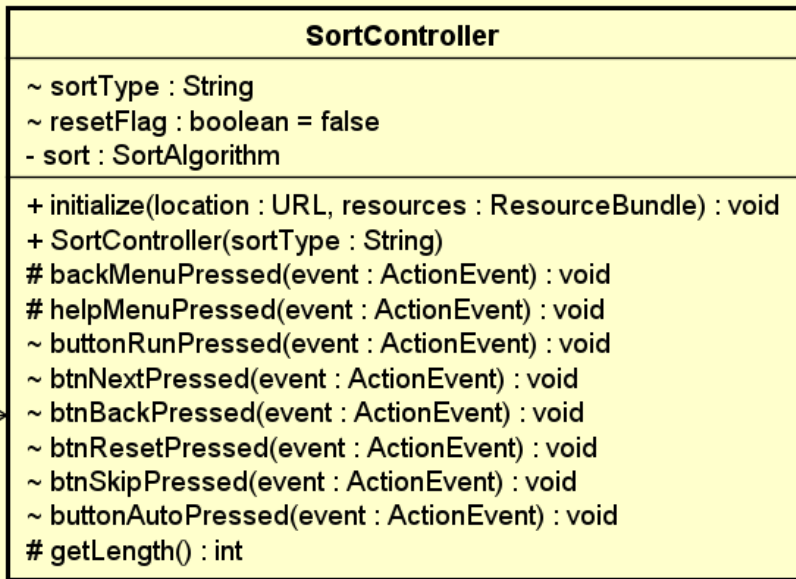
Package “screens”: store the main screen class of the application

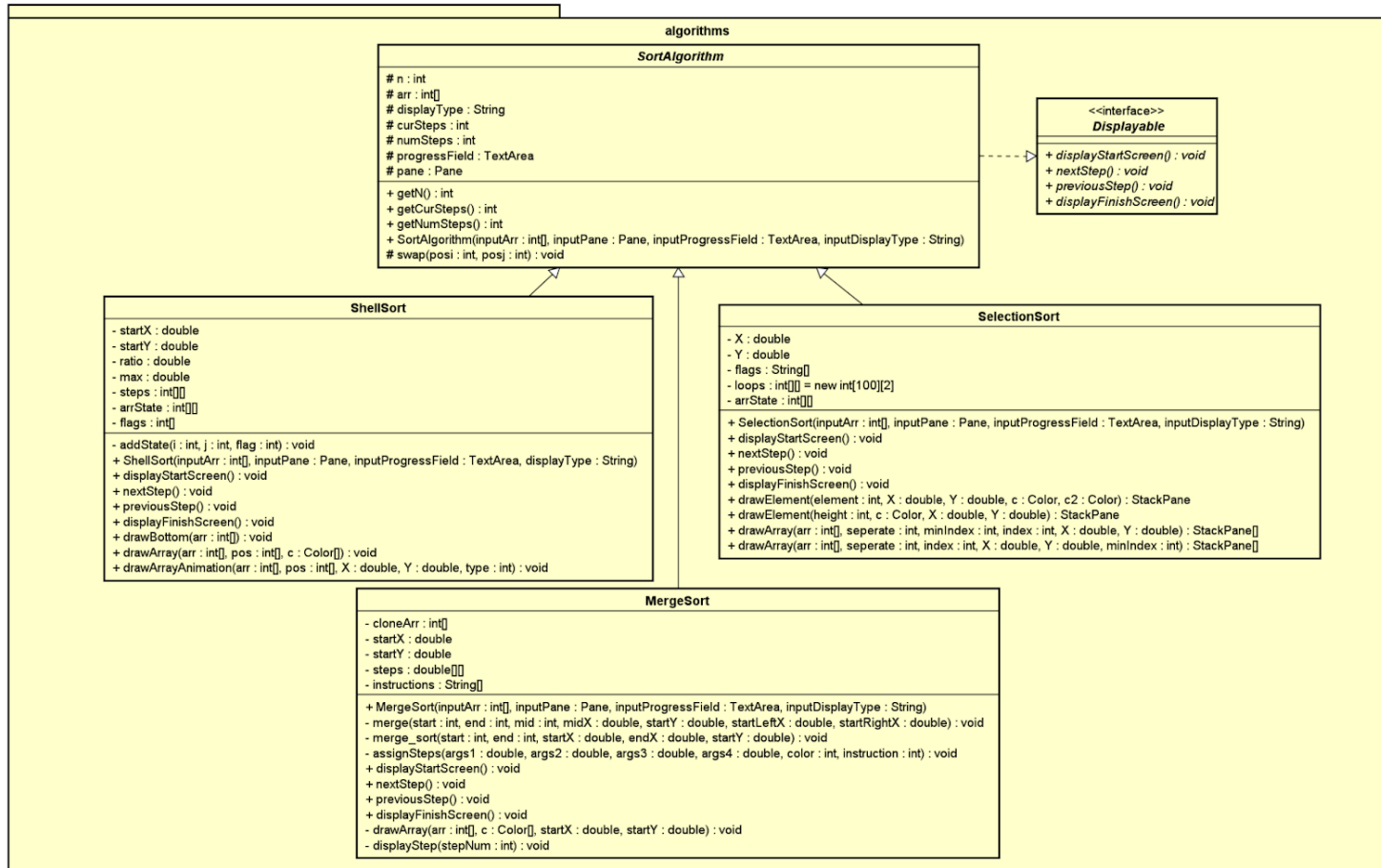
Package “shapes”: store the abstract class “**ElementShape**” and 2 derived shapes, namely **SquareShape** and **BarShape**.

pkg



controllers





pkg

shapes

BarShape

+ BarShape(X : double, Y : double, height : double, c : Color)
+ BarShape(X : double, Y : double, height : double, c1 : Color, c2 : Color, element : int)

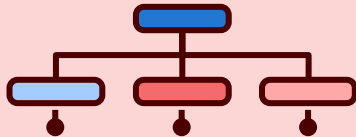
ElementShape

- rectangle : Rectangle
+ movingXY(X : double, Y : double) : TranslateTransition
+ movingX(X : double) : TranslateTransition
+ movingY(Y : double) : TranslateTransition

SquareShape

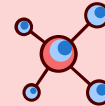
+ SquareShape(X : double, Y : double, c1 : Color, c2 : Color, element : int)

OOP TECHNIQUES



Inheritance

- In package algorithms: three sort types inherit from SortAlgorithm
- In package shapes: two shape type inherit from ElementShape



Polymorphism

- Method polymorphism: different drawElement and drawArray in SelectionSort method to visualize different shapes
- Object polymorphism: All specific sort algorithms are upcasted to the abstract class SortAlgorithm, which implements the interface Displayable



Online Screen Recorder

screenapp.io/?fbclid=IwAR1sy5AJ8PjZVyNWLydtgkTt0CWy3e30sagp9ZHvRHN37EzCK8qOxj-8ENM#/recording

Ứng dụng Thẻ mới

Danh sách đọc

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