**Report for COVID-19 Simulation project**

Team 1

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* **Task**

Simulate the spread of a virus such as SARS-CoV-2, the pathogen behind COVID-19.

Show the simulation progress in GUI.

* **Conclusion**

**暴发性传播**

**对比，传播速度比SARS快**

**Mask, test, quarantine 的影响**

* **Assumptions and Factors**

Assumptions:

Quaratine

K factor

R factor

Spread speed:

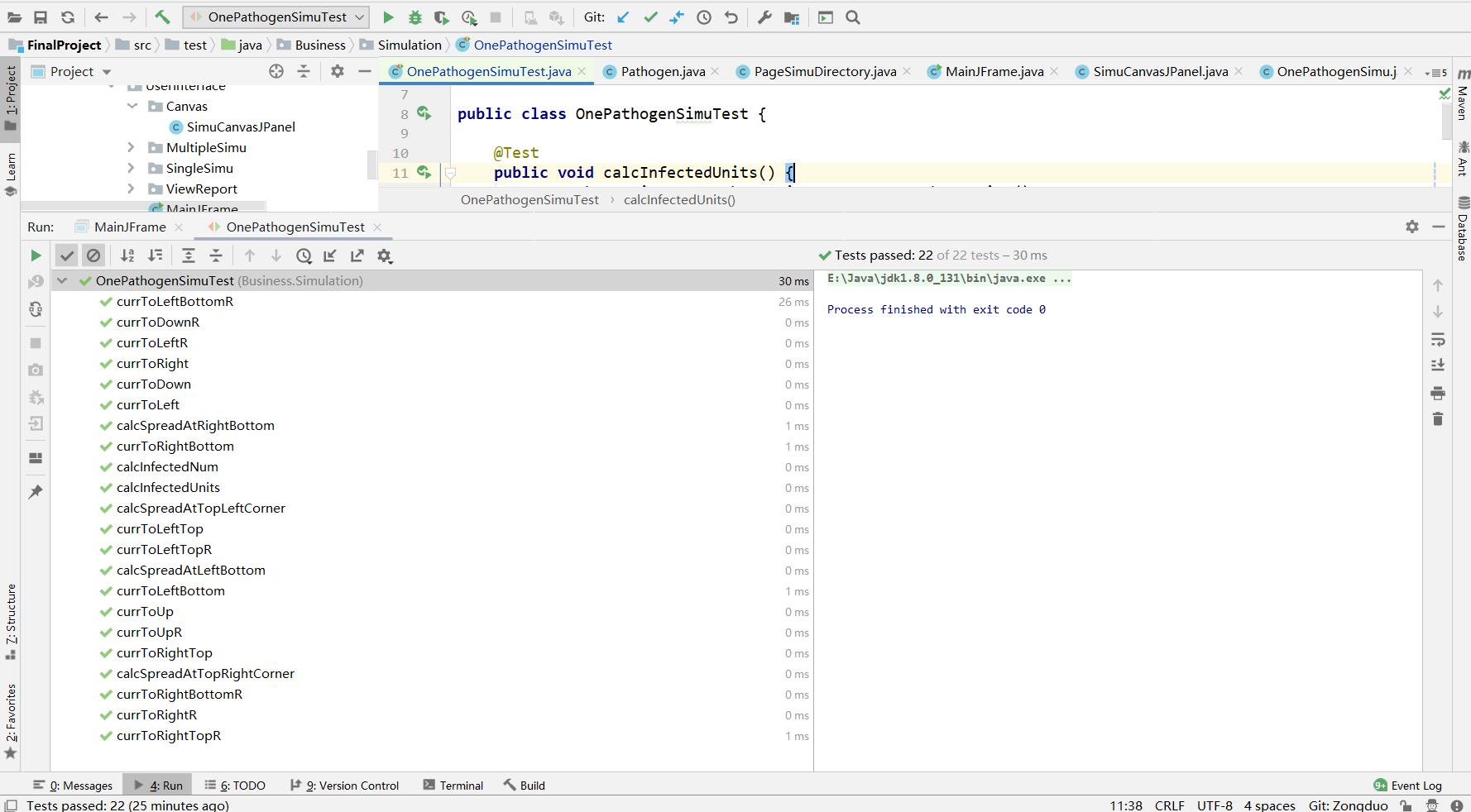
* **Evidence to support**

**Simulation screenshot**

* **Walk Through**

|  |  |
| --- | --- |
| 1. run ***MainJFrame*** to get the GUI Frame |  |
| 2. Choose ***Single Pathegon Simulation*** or ***Multiple Pathogens Simulation*** to get into simulation mode |  |
| 3. Enter the ***Population Density*** textbox with number (better to larger than 5000); check boxes to set some factors that affect the spread of the virus (if ***Quarantine*** is 'yes', the infection will not go outside that origin area) |  |
| 4. Click on ***Start Simulation*** and there will be a random-selected area as the beginning epidemic area, then canvas will show the progress of simulation |  |
| 5. After the simulation stop, there are several charts to view using ***See ALL Reports***, select the time of simulation to see details charts |  |
| 6. ***Back*** button take back from the report view page to simulation page |  |

* **Screenshot of Unit test passing**

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* **Reference**

<https://www.upsbatterycenter.com/blog/super-spreading-and-k-factors-of-dispersion/>

<https://en.wikipedia.org/wiki/Basic_reproduction_number>

<https://www.sciencefocus.com/news/the-k-factor-nevermind-r-heres-the-number-we-need-to-understand/>

<https://www.upsbatterycenter.com/blog/super-spreading-and-k-factors-of-dispersion/>

<https://www.who.int/news/item/23-01-2020-statement-on-the-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov)>