CPTS 583 Deliverable 2-3 Software Documentation

Team: SKS- SPS quality

Instructor: Haipeng Cai

Team members:

Hsueh-Jen Lih, Guang-Zheng Lee, Hsuan-Yu Chen, Ping-Wen Chen

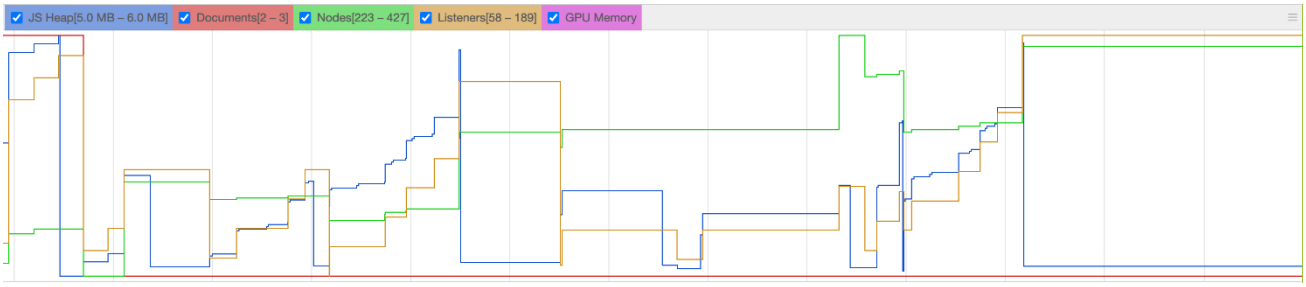
Quality Report- Product Quality Metrics

Quality: **Availability**

Quality Goal: System working 24/7

Quality Metrics: Error rate lower than 5% per month

Validation Results:



Although we have only tested for 2/3 day, this picture above shows that this system is fairly stable in our testing period. We will try to approach for 24/7 in the future testing.

Quality: **Reliability**

Quality Goal: System works correctly 24/7

Quality Metrics: Accept 5% error rate per month

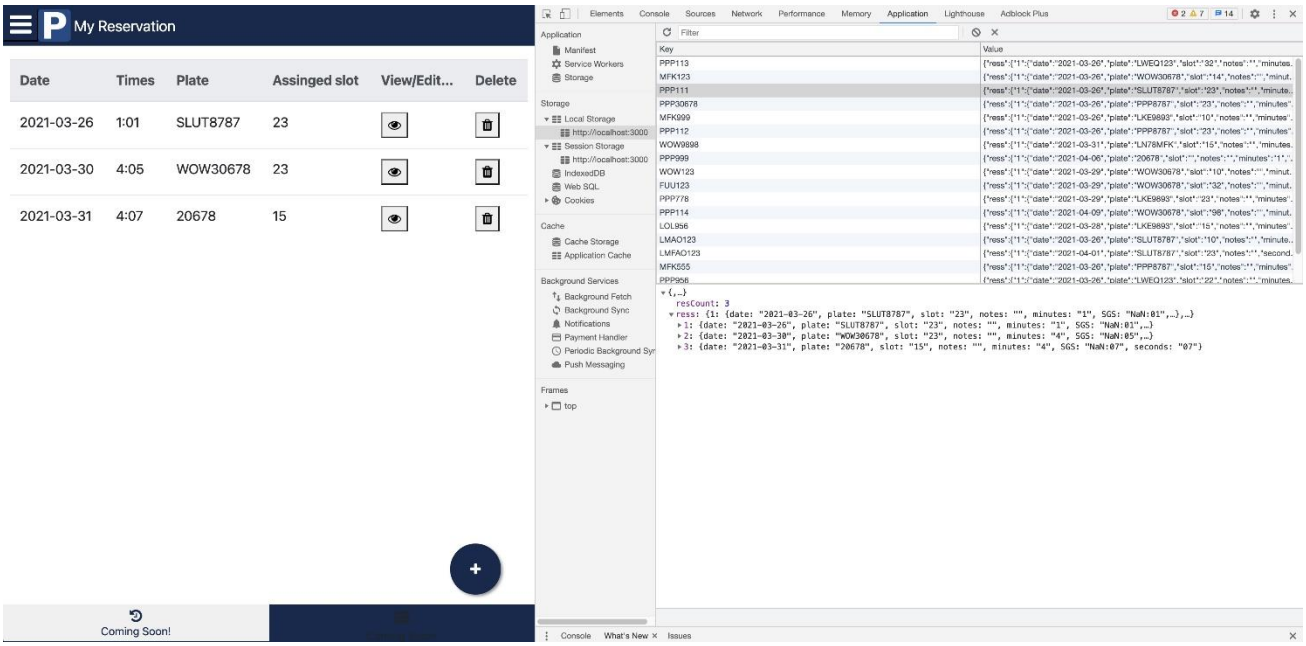
Validation Results: According to the figure above, it shows the system has 0 error during the test. Therefore, this system is reliable so far.

Quality: **Robustness**

Quality Goal: System can detect types of car plate

Quality Metrics: No error exists

Validation Results:

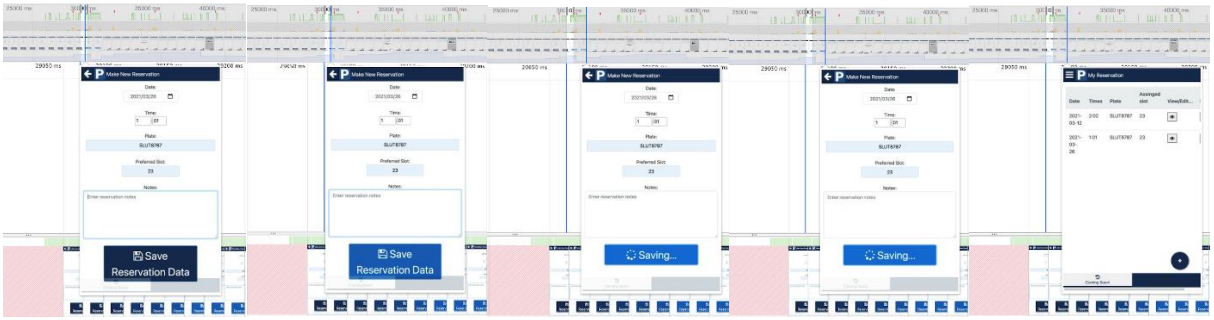


According to the figures above, we robustly create user in order to make sure car plates are being detected and store successfully. In the results, the functions are working properly.

Quality: **Learnability**
Quality Goal: This system can operate intuitively
Quality Metrics: A new user can understand this system by reading simple instruction.
Validation Results: We have potential users to test our learnability, and they give us positive feedback which is easily to use without any guiding in most of the functions.

Quality: **Usability**
Quality Goal: This system is extreme simple for users to use.
Quality Metrics: This system interface has helpful simple instruction.
Validation Results: Like learnability, we have potential users to test as well. They state most of the functions are easy enough to use. However, there has some part of functions can be improved in user interface, such as adding an instruction.

Quality: **Efficiency**
Quality Goal: This system generate result clear and quick
Quality Metrics: The system should return result less than 5s at most scenario (98%)
Validation Results:



From 28900ms and end at 30600ms. Our testing finished in 5s.

Quality: **Security**
Quality Goal: The system should not be compromised
Quality Metrics: Monthly audits should reveal fewer than 5 security issues KLOC.
Validation Results: Our system provides personal account management, which give user initial level of security. Security, yet, does not meet our expectation and will be implement and enhanced in future modification.

Quality: **Portability**
Quality Goal: This system can work for different kinds of parking lot. The installation time could be done in half of a day.
Quality Metrics: The system should be compatible to any other system configuration.
Validation Results: We tested our system on different devices (simply different laptop). Both Mac OS and windows 10 has been tested and result with great performance. This system is expected to be evaluate in more platforms.

Process Quality Metrics

Quality: **Maintainability**
Quality Goal: The system could maintain easily.
Quality Metrics: The source code should not contain lexical and design anti-patterns, be well documented, readable, and not contain any code smells.
Validation Results: There have some possible improvements for maintainability. Since we are developing this system, we may add the annotation in our source code.

Quality: **Testability**
Quality Goal: This system can be tested easily
Quality Metrics: Every class must have both white and black box testing, with integration/mutation testing where possible
Validation Results: Our team testing relies on both white box and black box. In term to black box, we invite several nominal users run some simply task that we requested. To be specific, reserving parking slot since main function is to setup a reservation. For white box testing, we mostly tested robustly which we find that this is a potential improvement. Our future plan is to specifically introduce testing application such as the testcafe or the siege for reliable testing.

Quality goals and metric

Product Quality	Quality Goals	Quality Metrics	Verification and Validation Results
Availability	System working 24/7	Error rate lower than 5% per month	fairly stable
Reliability	System works correctly 24/7	Accept 5% error rate per month	0 error during the test
Robustness	System can detect types of car plate	No error exist	Data detected and store correctly
Learnability	This system can operate intuitively	A new user can understand this system by reading simple instruction	User can use this system without guiding
Usability	This system is extreme simple for users to use	This system interface has helpful simple instruction	most functions are easy enough
Efficiency	This system generate result clear and quick	The system should return result less than 5s at most scenario(98%)	Less than 5s for each task
Security	The system should not be compromised	Monthly audits should reveal fewer than 5 security issues KLOC	does not meet our expectation
Portability	This system can work for different kinds of parking lot. The installation time could be done in half of a day.	The system should be compatible to any other system configuration	Work on multiple platforms
Process Quality			
Maintainability	The system could maintain easily	The source code should not contain lexical and design anti-patterns, be well documented, readable, and not contain any code smells.	may add the annotation in source code
Testability	This system can be tested easily	Every class must have both white and black box testing, with integration/mutation testing where possible	White box testing with testcafe or the siege for reliable testing