School of Information Technologies
Faculty of Engineering & IT

ASSIGNMENT/PROJECT COVERSHEET - GROUP ASSESSMENT

Unit of Study: SOFT2412 Agile Software Development Practices

Assignment name:Agile Software Development with Scrum and Agile Tools - Sprint 2

 Tutorial time: Thu 6p.m. - 8p.m. R18G3   Tutor name: Muhit Saleh Anik

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We realise that we may be asked to identify those portions of the work contributed by each of us and required to demonstrate our individual knowledge of the relevant material by answering oral questions or by undertaking supplementary work, either written or in the laboratory, in order to arrive at the final assessment mark.

Project team members				
Student name	**Student ID**	**Participated**	**Agree to share**	**Signature**
1. **Chenglong Li**	**490035344**	Yes	Yes	李承龙
2. **Yuben Fang**	**480480835**	Yes	Yes	Fang Yuben
3. **Xiaohan Li**	**470011746**	Yes	Yes	XIAOHAN LI
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5. **Jiesheng Liang**	**480342832**	Yes	Yes	JIESHENG LIANG 梁志圆
6.		Yes / No	Yes / No	
7.		Yes / No	Yes / No	
8.		Yes / No	Yes / No	
9.		Yes / No	Yes / No	
10.		Yes / No	Yes / No	

1.Scrum Development

1.1 Project Team

The role is determined in the meeting before Sprint 1 starts:

Product Owner: Jackson(Canwei) Cai

Scrum Master: Jacky(Xiaohan) Li

Core Team members: Jerry(Chenglong) Li, Lucius(Yuben) Fang, Jackson(Jiesheng) Liang

1.2 Sprint goal

In this Sprint, we aimed to finish some parts of the last sprint that we didn't complete including the list of five items when user login, the program will automatically exit when there is no operation made by the user after 2 minutes and the password input is hidden by showing asterisk symbol(*). Besides, we added new functionalities about seller and completion of the transaction part with transaction cancelling and success transaction. Additionally, we added the interface of payment by cash and changes after calculation.

1.3 Tasks Board

1.3.1 Product backlog

We have 6 User Stories for the whole project.In this Sprint. There are 10 Story points in total.

1.As a seller, I want to modify items details and modify items so that I can modify some goods in the vending machine.

2.As a registered customer, I want to pay the transaction by card so that it is more convenient than cash.

3.As an Owner, I want the system to be closed automatically with transaction cancel when any idle activity that is more than 2 minutes.

4.As an anonymous customer, I want to pay the transaction by card so that it is more convenient than cash.

5. As an anonymous customer I want to pay the transaction with cash so that I can pay without a credit card.

6. As a registered customer, I want to pay the transaction with cash so that I can pay without a credit card.

1.3.2 Sprint backlog

We choose 6 User Stories for this Sprint and divide each story into several tasks(see evidence).

Two user stories are completed in total:

User story 1:As a seller, I want to modify items details and modify items so that I can add some goods into the vending machine.

1. The seller should obtain a report containing a list of the current available items that include the item details.

2. The seller should obtain a report contains a summary that includes items codes, item names and the total number of quantity sold for each item

3. The seller would receive an error message if he/she adds items quantity over 15.

4. The seller can modify the item details

5. The seller has his/her own interface when he/she logs in

User story 2.As a registered customer, I want to pay the transaction by card so that it is more convenient than cash.

1. Test for paying transactions or cancel transactions for registered customers.

2. The card number should appear as * for a registered customer

3. Failed transactions can be stored into the database for registered customers.

4. Method used to cancel transactions for registered customers.

5. Method used to pay transactions for registered customers.

6. Success transactions can be uploaded to the database for registered customers.

User story 3.As an Owner, I want the system to be closed automatically with transaction cancel when any idle activity that is more than 2 minutes.
1. basic cancel function after 2 min

User story 4.As an anonymous customer, I want to pay the transaction by card so that it is more convenient than cash.
1. Test for paying transactions or cancel transactions for anonymous customers.

2. The card number should appear as * for anonymous customer

3. Failed transactions can be stored into the database for anonymous customers.

4. Method used to cancel transactions for anonymous customers.

5. Method used to pay transactions for anonymous customers.

6. A Successful transaction can be uploaded to a database for anonymous customers.

User story 5. As an anonymous customer I want to pay the transaction with cash so that I can pay without a credit card.
1. Login as an anonymous, an interface that user can input different amounts of different kinds of face values of money
2. Login as an anonymous, return different amounts of different kinds of face value of money
3. Login as an anonymous, the interface of changes return

User story 6. As a registered customer , I want to pay the transaction with cash so that I can pay without a credit card.
1. Login as a registered customer, an interface that user can input different amounts of different kinds of face values of money
2. Login as a registered customer,return different amounts of different kinds of face value of money
3. Login as a registered customer, The interface of changes return

And there are two tasks from last week that we didn't sort them into this week's user story
1. The password input is hidden by showing asterisk symbol (*)
2. list of last 5 products in the interface after login

What's more, the burn-down chart is generated at the end of this sprint(see evidence). The reason for such a situation can refer to 1.4.4.

1.4 Scrum Events Artefacts
1.4.1Sprint Planning
Firstly, we planned to finish tasks we didn't complete last week. Then, we planned to add a new functionality of cancelling in the transaction part and the result of the transaction could be updated to the database. After that, A role of seller could be generated with functionalities of filling and modifying item details in the database. Finally, the interface of payment of cash was designed and changes were supposed to be returned after calculation based on the database.

1.4.2 Daily Scrum

The communication method has already been defined in the Sprint1 report. In this scrum three meetings are held.

In the first meeting, the Scrum Master discusses and splits the job with team members so that the team can start to do their own tasks.

In the second meeting, team members complete most of their own functions and change ideas with each other to complete the rest unsolved functions. Learned a lesson from the previous sprint, the team puts the task integration earlier since it needs more time.

In the third meeting, team members try to do the test function of their own part and prepare for the demonstration with a ppt and guideline.

1.4.3 Challenge

1. There is a function in the seller that we need to change the item_code of Items. We set the item_code to be a primary key at first. However, there is some problem when we want to change that. We fix it at the end and learn that the primary key which determined by SQLite cannot be changed anyway.

2. We use a command line to output the result to the client, it is a little bit hard to test the interface. We try to write the guideline for the client in demonstration and test the process to ensure there would be no mistake in the demo.

3. The conflict problem in committing every team members' part is occurred. Since the team uses an SQLite database to restore the data, when we try to test the program on our own machine, the data in database would be modified and the conflation of the database may occur. To deal with it, the team needs to copy an initial database and when we try to push the work, the current database should be replaced by the initial one.

1.4.4 Sprint review

In this sprint, we create sub-tasks for user stories instead of creating tasks and link them with user stories, this will make the story point changes can be shown in the burndown chart. We completed most of the sub-tasks and finished two stories completely, however there are 4 stories remaining one to two subtasks that are incomplete, this is because we stuck on those tasks, we will keep them for the next sprint. This makes only two story points are gained for the two stories we complete in the burndown chart.

1.4.5 Sprint retrospective

We made much progress in user story settings in this sprint. However, the story point can be better distributed according to the task in each user story. Besides, we need to remember to update the status of the sprint board in jira every day which will perform useful data in the burn down chart and we can make adjustments to our next sprint.

2. Agile development tools

(SOFT2412 Group Assignment2 Group3 Sprint1 report,2020)

We use github, gradle, junit and jenkins for this project as our tools to develop the product. In the github, members will create branches when they need to implement new features on the product. For gradle, we add dependencies so that we can use junit to test codes and generate jacoco test reports and also allow us to use the sql database. Using jenkins, we can apply our continuous integration on our project, it provides functionality like automated build and test. Every time group members push their code to the git repository, they can see their build and test result on jenkins server which is maintained by one of our members.

Our current Jacoco coverage report is generated by Jenkins(see evidence). In current progress, the code coverage is 59 percentage which is a bit below the standard line 75 percentage. However, the group has not written the test case for the command line UI and the function which needs to interact with the database. These test cases should be completed in the next sprint.

3. Application development

3.1 Functionality

3.1.1 Seller Interface

The seller can input his/her account and password to get the interface which is different from the customer interface. There are 8 options totals. 1.change item name 2.change item code

3. change item category 4.change item quantity 5. change item price 6.obtain <available items report> 7.obtain<summary report> 8.Exit. And sellers can operate multiple operations and then exit.

3.1.2 Seller modify items function

1.change item name. The seller can input item_code and new item name to change item name.If the item_code is not in the system or there is an existing item name, the operation will fail.

2.change item code.The seller can input item_name and new item code to change item code.If the item_name is not in the system or there is an existing item_code ,the operation will fail.

3.change item category. The seller can input item_name and new category to change the category of item.If the item_name or category is not in the system; the operation will fail.

4. change item quantity. The seller can input item_name and new item quantity to change the quantity of item.If the quantity is bigger than 15 or the item_name does not exist in the system; the operation will fail.

5.change item price. The seller can input item_name and new item price to change the price of item. If the item_name is not in the system, the operation will fail.

3.1.3 Seller report

The seller can choose to generate two reports in their interface. The reports "available_items_report.txt" and "get_summary_report.txt" can be found in the root content of the product after generation which separately contains current available items with their details and current sold items with their code and name. If the item details are updated by the seller or transaction, the seller can obtain an updated report by inputting the option again and the previous reports would be eliminated.

3.1.4 Pay transaction
In the Transaction class, a new method used to update information of successfully paid transactions to the database is created. In addition, it will update the quantity in stock and the number of items sold in the item table and the last five items bought by the user in the user table in the database according to the items that are paid in each transaction.

3.1.5 Auto-Cancel

Now, the vending machine can be automatically closed if there are no operations made by the user after 2 minutes. After that, the cancelled transaction will be updated to the database.

3.1.6 List 5 items

After user login, the system will display 5 items he bought before. If a new user login, the system will display 'null' instead. The system will record items bought by users and send it to the database.

3.2 Contribution

Jackson (Canwei) Cai - Sprint planning, User story 1&2&4 implementation(Modify items function, Seller interface), test case of implemented functions, Sprint-2-report

Jacky (Xiaohan) Li - Scrum event records, User story 1&2&4 implementation (Seller report obtain), test case of implemented functions, Sprint-2-report

Jerry (Chenglong) Li - Agile tools management, User story 1&2&4 implementation (Connect functions with the database to update transaction information, last-5-items), test case of implemented functions,Sprint-2-report

Lucius (Yuben) Fang - Agile tools management, User story 2,3,4 implementation(last-5-items) , test case of implemented functions, Sprint-2-report
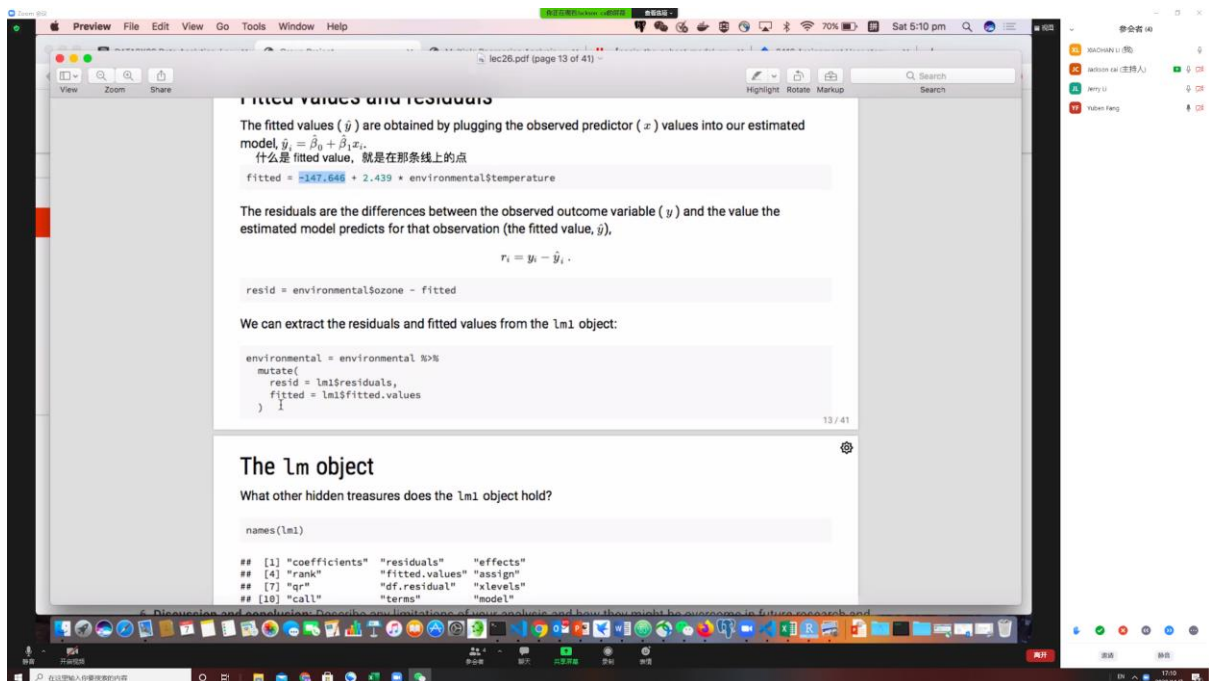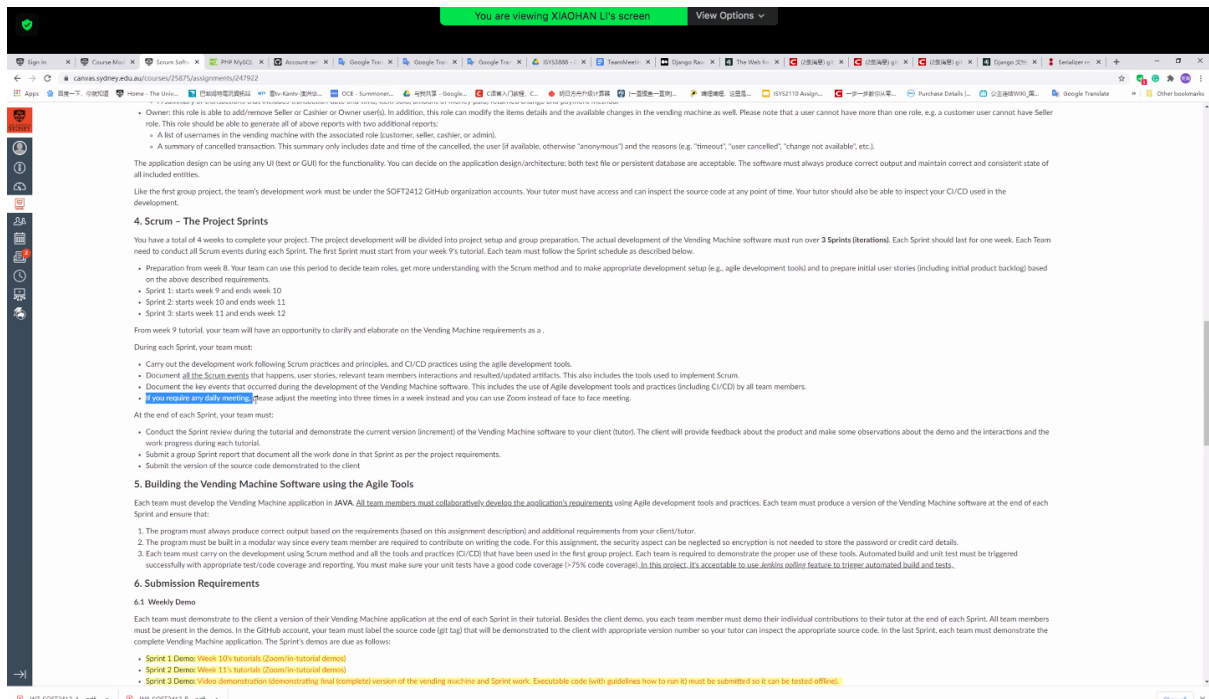
Jackson (Jiesheng) Liang - part of User story 5&6 implementation(User interface, change function), Sprint-2-report
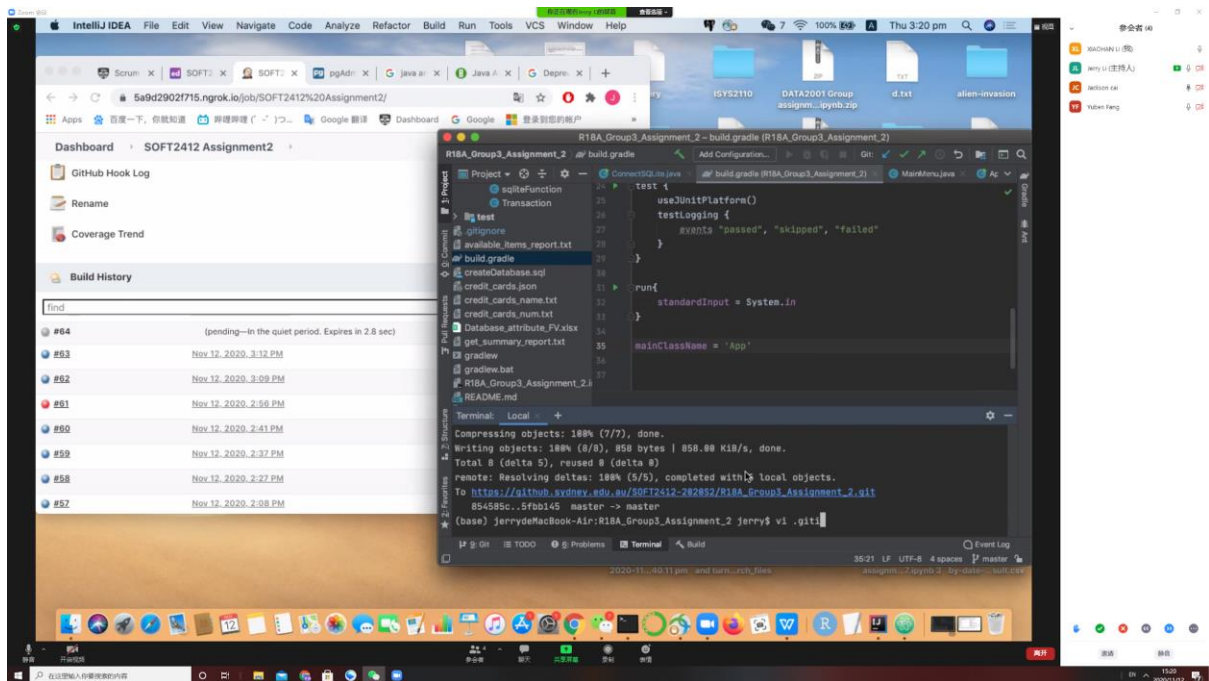
4. Evidence

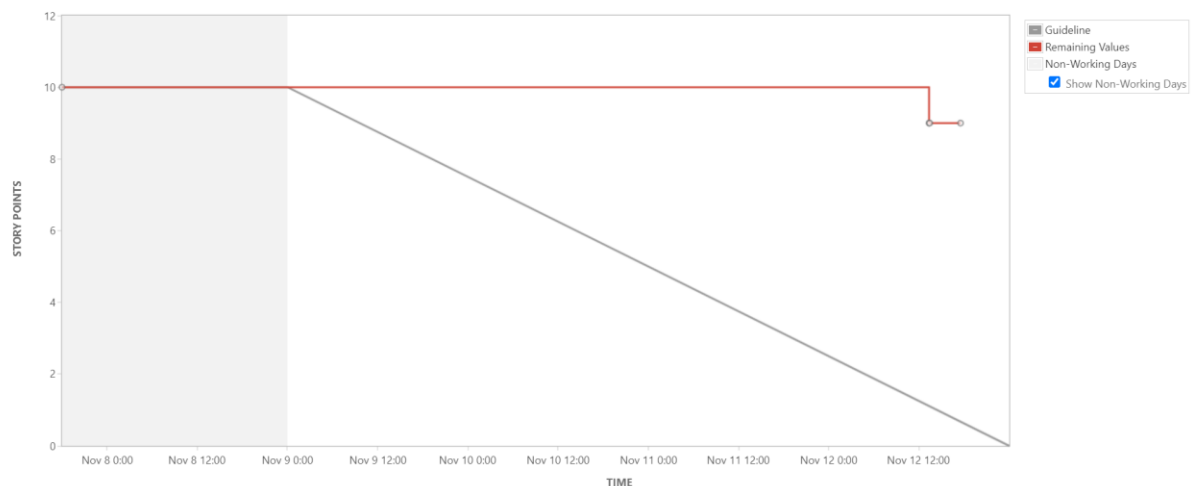Scrum development:

Scrum events artefacts:
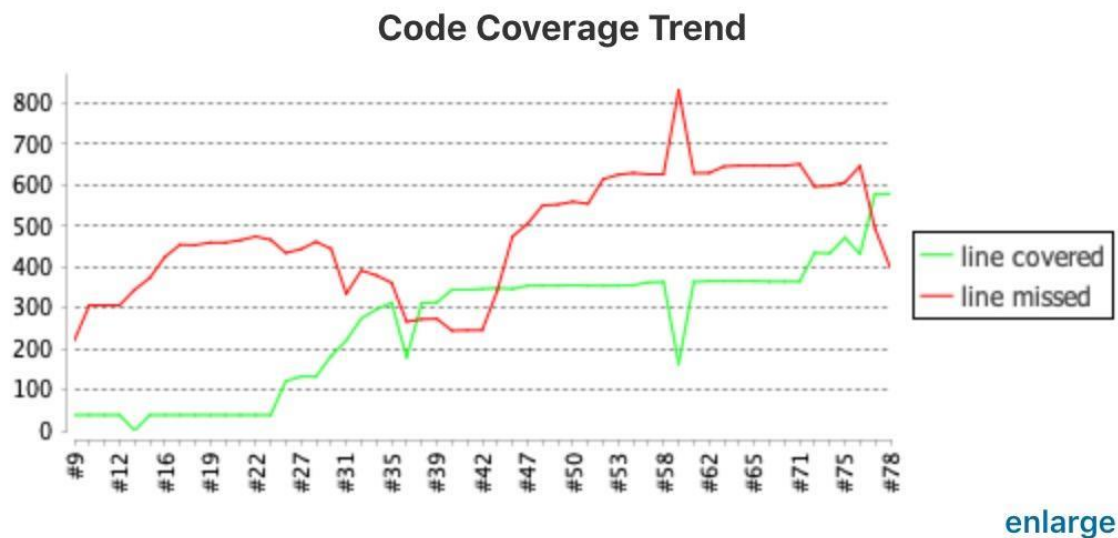
Daily scrum(1 is missing)

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Fitted values and residuals

The fitted values ($\hat{y}$) are obtained by plugging the observed predictor (x) values into our estimated model, $\hat{y}_i = \hat{\beta}_0 + \hat{\beta}_1 x_i$.

什么是 fitted value，就是在那条线上的点

```
fitted = -147.646 + 2.439 * environmental$temperature
```

The residuals are the differences between the observed outcome variable (y) and the value the estimated model predicts for that observation (the fitted value, $\hat{y}$),

$$r_i = y_i - \hat{y}_i .$$

```
resid = environmental$ozone - fitted
```

We can extract the residuals and fitted values from the lm1 object:

```
environmental = environmental %>%
  mutate(
    resid = lm1$residuals,
    fitted = lm1$fitted.values
  )
```

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The lm object

What other hidden treasures does the lm1 object hold?

```
names(lm1)
```

```
## [1] "coefficients"  "residuals"    "effects"
## [4] "rank"          "fitted.values" "assign"
## [7] "qr"            "df.residual"  "xlevels"
## [10] "call"          "terms"        "model"
```

Sprint backlog - Jira Burndown chart

Agile development tools

Code Coverage Trend

enlarge

Jacoco - Overall Coverage Summary

INSTRUCTION	59%	
BRANCH	43%	
COMPLEXITY	56%	
LINE	59%	
METHOD	79%	
CLASS	79%	

5. Appendix

(SOFT2412 Group Assignment2 Group3 Sprint1 report,2020)

1.4.2 Daily Scrum

As scrum defines, there should be a daily 15-minute standing up meeting. However, due to the particularity of the project, we decide to hold four meetings (see evidence) a week and extend the length of the meeting. For daily communication, we use WeChat (see evidence) to report the daily issues and progress.