

System Design For BestPurchase APP

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# Introduction

The BestPurchase app’s scope is to provide a platform for customers to shop for groceries from difference stores in one go via phone or website. The BestPurchase allows users to explore products, choose items, place orders, and have orders deliver to their home. The BestPurchase also provide scheduling delivery services.

In this assignment, previous class model is updated with additional OPT class, relationship and several attributes and methods to provide better understanding of the class model and to support section 6.2 and 6.3 question. The getCheckOut() method of the CheckOut class will be the main component to get in detail for section 6.2 and 6.3 question.

Diagram

Description automatically generated

Figure 1: Example of Checkout process.

# Updated Class Model

The model class has been updated with some addition attributes, methods, relationship, and class. New OTP (one-time passcode) class is added in order to support activity and sequence diagram in the next section better. All updated is highlight with green color to get better visualization.

The getCheckout() method of CheckOut class which is highlighted in pink color will be used for section 6.2 and 6.3.

Diagram, schematic

Description automatically generated

Figure 2: Updated Class Model.

# Activity Diagram

Diagram

Description automatically generated

Figure 3: Activity diagram of Checkout.

The activity diagram above illustrates getCheckOut() method of the CheckOut class of class diagram in the section 6.1.

In this activity diagram.

* Customer clicks into checkout, then system displays payment option.
* Customer chooses payment option and then input card information.
* System validate card. If card is valid, system will request security code (OTP) otherwise, if card is not valid, system allows customer to retry input card information maximum 3 times. After 3 tries failed, the process will be aborted.
* If Customer receives code through email or SMS. Customer will input the code and system will verify code. If the OTP code is valid, payment is successful. Otherwise, payment is failed. End process.
* If customer does not receive OTP code, The process will automatically end when timeout.

## Focused Sequence Diagram

The below sequence diagram illustrates Payment process in the activity diagram in the section 6.3.

Diagram

Description automatically generated

Figure 4: Sequence Diagram of Payment

Payment process has been chosen from the activity diagram in the section 6.2 to draw a sequence diagram.

The sequence diagram above illustrates that when the system process to the Payment class. In this sequence diagram the payment class is responsible for processing payment and the diagram above illustrates it interacts with online payment object, CreditCard object and OTP object in order to process payment and it is described below:

1. The Payment class sends a message processPayment() to online:Payment to process the payment.
2. The online:Payment sends a request setAuthorizePayment() to :CreditCard to set authorize payment.
3. The :CreditCard sends a request generateOtp() to the :OTP object to generate an OTP code.
4. The :OTP generates an OTP code and sends it back to the :CreditCard.
5. The :CreditCard object sends a response to the :OnlinePayment object indicating the verification was successful with “Verify payment success” message in sequence diagram above.
6. After the online:Payment receives successful verification, then the online:Payment processes the payment and sends a response (Payment Accept) to the Payment class.

# Pseudocode

Process checkout

Choose payment method.

WHILE retries < 3 times

Display message asking for card information.

Get card information from the user.

IF card validation is success

Display requesting security code message (OTP)

Break while loop. Process to the next step

ELSE

Display failure message.

Increment retries by 1.

ENDIF

ENDWHILE

IF 3 tries unsuccess validation.

Abort whole process.

ELSE

IF security code is received

Input security code and verify code.

IF code is valid

Display message Payment Accept

Process done.

ELSE

Abort process with invalid code message. ENDIF

ENDIF

# References

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