Software Specifications for EWALLET

Project Requirements Specification

Version 1.0

e-Wallet for BITS, Goa Campus

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Submitted in partial fulfillment
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CS F213 (Object Oriented Programming)
Project

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1.1)Purpose : The purpose of this document is to present a description of project details. It will explain the purpose of building this application and the various scenarios where it can be used.

1.2)Scope of the project : This software project is aimed for reducing the number of cash transactions within an organization. It is being built to ensure cash less transaction of money in return for goods and services used within the premises of the organization. The software will provide an easy to use interface to users institutions and admins operating the software. It will have personalized accounts for all the users and institutions from which e-money can be transferred to other accounts. The transaction will be completed when the specified amount is credited from an account and debited to another account. The software can be efficiently utilized in corporate offices with large campuses. The companies can use the software to give its employees previliges to purchase anything within company's premises using their e-wallet. Also the admins who look after the system have complete control over all user's accounts to monitor any frauds.

1.3)Technical Details : The software will be built using java as its core language. It will use spring framework and maven archetype for project management. The data will be persisted on postgresql database. The software will follow MVC architecture. The controllers will be built using java and the view will be HTML based web view. The application will be hosted on apache java web server. Spring framework will be used extensively for making servelets and posting requests on the server. SpringJPA will be used for making database queries for CRUD operations.

1.4)GLOSSARY

Term	Definition
e-Wallet	The software component that handles the payment and associated data and provides the user(in our case, a student) with options to make payments, recharge and avail loyalty benefits provided by the vendors.
Student	Refers to the students at Bits Goa. More specifically, any person with access to the outlets at Bits Goa who has an SWD account maintained at the campus and is identified by a unique ID number provided by the campus.
Database	Collection of all the information, i.e., payment logs, credit balances and dues, account balances and registered student information is monitored by this system.
Vendor	Person/outlet on campus who(which) receives the payment from the students when a purchase is made by them.
Payment tracker	A system which facilitates the secure payment process by interacting with the student and the database and the vendor.
Loyalty benefit	Special offers made by outlets on campus to students who make purchases from their outlets using the e-Wallet system.
Logs	Refers to data that indicates the proceedings of various transactions between the student and the vendor. In a way, they behave as a sort of proof of payment.

Recharge	Recharge here, is used to refer to the transfer/translation of money from the student's swd-account to e-Wallet cash, which the student can use at the various on-campus outlets.
User	The term user has been used along with the term Student in this document. In all cases both terms refer to a student as described above.

1.5) Overview of Document

The next chapter, the Overall Description section, of this document gives an
overview of the functionality of the product. It describes the informal requirements and
is used to establish a context for the technical requirements specification in the next
chapter.
The third chapter, Requirements Specification section, of this document is written primarily for the developers and describes in technical terms the details of the
functionality of the product.
Both sections of the document describe the same software product in its entirety, but are intended for different audiences and thus use different language.

2.0. Overall Description

2.1. System Environment

The e-Wallet system has four active actors.
The User(mainly Student in our case), Vendor, Admin and the Database.

2.2 Functional Requirements Specification

This section outlines the use cases for each of the active readers separately. The Student is a key actor as the software is designed to meet the needs of students on campus. The payment tracker and the Database are the major actors that facilitate the functionality of the e-Wallet software. The Vendor interacts mostly outside of the software system; most of the interaction is limited to receiving payments, i.e., e-Wallet cash, which can be later translated to normal cash based on the adopted methodologies.
In this section, we list out the various actors and all their associated use-cases in depth, showing the basic description and flow of action within and outside the system.
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system.

2.2.1.THE USE CASE DIAGRAM

A)ACTORS
1)User-A person or a student who will either do a transaction with the institute or another user. He/She can check his/her balance, but before doing so has to login into his account.A user can do transaction with another user also.

2)Institute-It includes borkars, BITS administration ,ice and spice etc.. The actions the institute perform are quite similar to the User. However the Institute has one more privilege .It can take the required money from the student(for which the student will have to enter his UID).

3)Admin-An admin has special privilege. An admin is required so that he could add users to the database and monitor the transactions.

4)Wallet Database-It is the most important actor. It has the following duties
a)Verify login details.
b)Check if there is required balance to make a transaction.
c)Check if the account is a valid one before the transaction can take place.
d)Also generate bill of the given transaction.

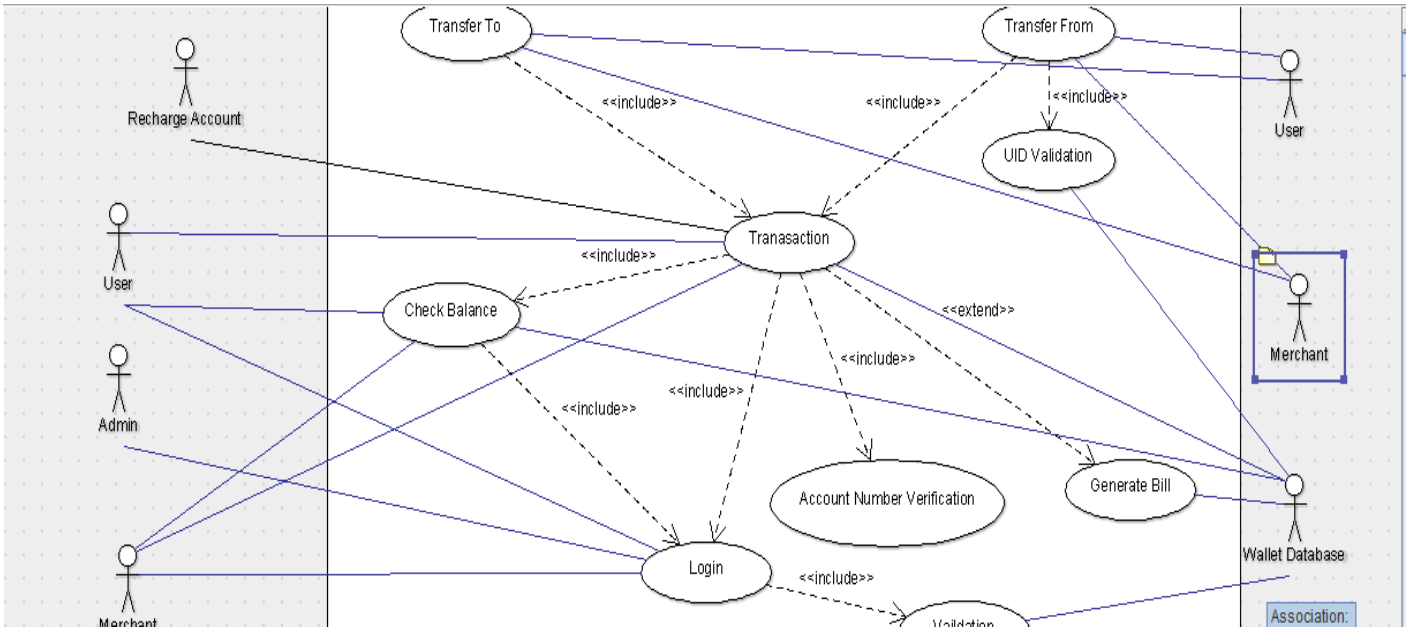
B) The Use Cases
1)Login and Validation-The User before doing any transaction has to login into the system. However this login has to be verified .The validation use case interacts with the wallet database to verify the user exist in it.

2)Transaction and Account Number Verification-Before the transaction can be done the system verifies that the Account number is registered with the database.
However the Transaction use case has two subdivisions
a)Transfer from-This is a privilege given to the institution so that it fill in the amount it wants to take from the user. However it requires the UID

number of the user.
b)Transfer to-This is a facility given to the user and the institute to transfer the money to someone's account after login.

3)Check Balance-The check balance use case allows the user to check his/her balance. It is also helps the SYSTEM as a whole to check if the user has the required balance in his account before the transaction can be done.

4)Generate Bill-It helps the user to generate a bill after each transaction so that he remembers where he has spend his money.



3.0. Requirements Specification

3.1 External Interface Requirements

The Project links to the external systems of a Barcode Scanner being used to enter the student ID and along with that the student's e-wallet is linked to their SWD account. The Student details are imported from their SWD accounts. The payments made will be made through every student's SWD account so as to keep a uniform management system that can also be tracked by the parents. The SWD account fields of interest to the e-Wallet is the Student ID number which then will be followed by a 4-digit pin to verify the validity of the transaction.
The Recharge e-Wallet use case updates the e-Wallet with money from the SWD account. The Update Database use case updates the student account details with their current balance and credit limits.

3.2 Functional Requirements

3.2.1 User Registration

Use Case Name	Registration/Initial Identification
Trigger	---
Precondition	Student has not registered for an e-Wallet account
Basic Path	1. The User (Student) registers for the service using his/her student ID. The rest of the details will be then imported from their SWD accounts 2. On input of a valid student ID the program will then prompt the User to set a 4-digit pin for security purposes. 3. On Successful registration the User is asked to set the initial balance and credit limits. 4. The Entered amount for the initial balance is then added to his/her respective e-Wallet.
Alternative Paths	In step 1, if the User enters a non-existent ID number the program prompts the User to re-enter. If Valid then return to step 2. In step 3, if the User enters an amount greater than that allowed by the system. The system prompts the user to re-enter the amount under the limit.
Postcondition	The e-Wallet account is initiated and ready to use.
Exception Paths	The User may abandon the registration process at any time.
Other	NA

3.2.2 Recharging e-Wallet

Use Case Name	Recharge e-Wallet a/c
Trigger	The user selects a *Recharge A/C* option.
Precondition	Student has registered successfully and possesses a unique 4-digit pin
Basic Path	1. The User enter the amount required in the e-Wallet account. 2. The e-Wallet is credited with requested amount from the SWD account.
Alternative Paths	In Step 2 if the entered amount is greater than what is available in the SWD account, the User is then prompted to avail the credit option. 1. If amount entered is more than the credit limit the user is prompted to enter again.
Post condition	The e-Wallet is recharged with the aforementioned balance.
Exception Paths	The attempt may be abandoned at any time.
Other	The Credit amount is then billed to the availing User in the next semester. Logs are then updated

3.2.3 Viewing Logs

Use Case Name	View Logs
Trigger	User selects the option to view logs.
Precondition	Student possesses an e-Wallet a/c with a unique 4-digit pin
Basic Path	1. The System requests the database for logs. 2. The database then acquires logs from the Payment tracker. 3. The logs are then presented by the system to the User.

Alternative Paths	NA
Post condition	The Logs have been displayed to the User.
Exception Paths	The User may abandon the operation at any time.
Other	NA

3.2.4 Make Payments

Use Case Name	Make Payments
Trigger	The User purchases something and wishes to use the e-Wallet
Precondition	The payments are authorized by the payment tracker
Basic Path	1. Payment request is sent to the payment tracker. 2. Based on various criteria the tracker approves/disapproves the payment request. 3. On approval the payment is then received by the vendor.
Alternative Paths	In step 2, if the criterions are not met then the payment is not authorized. In that case the system reverts to step 1.
Post condition	The Payment is received by the concerned system.
Exception Paths	The User may abandon the operation at any time.
Other	The User information includes ID number and the 4-digit security pin.