CSC 431 – Spring 25

Cane Wallet

Software Requirements Specification (SRS)

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Version History

Version	Date	Author(s)	Change Comments
1.0	2/20	Blaise, Bender, Preston	Rough outline of the document
2.0	2/22	Blaise, Bender, Preston	Developed functional and non functional requirements
3.0	2/23	Blaise, Bender, Preston	Completed constraints and use diagram
4.0	2/24	Blaise, Bender, Preston	Completed the evolutionary requirements

Table of Contents

1. System Requirements

1. Functional Requirements

1. Dining Dollars Transactions

Title	Using the cane cards in the apple wallet to pay with dining dollars
Description	Be able to pay with dining dollars using your cane card via the apple wallet
Priority	1
Precondition(s)	Students must have an active cane card with an apple wallet compatible device, and have enough money in their account to make the purchase
Basic Flow	User accesses the university app or website. User then selects "Add Cane Card to Apple Wallet." System verifies the student's identity. Cane Card is added to Apple Wallet. When the student is attempting to make purchases with their cane card via the apple wallet they can tap on a NFC scanner to make their purchase after selecting the cane card in their wallet.
Postconditions(s)	Users are able to make purchases with their cane card more efficiently, and use it even if they do not have the physical version
Use Case Diagram	<Link or number, if present>

2. Access to Buildings

Title	Using the cane card in Apple wallet to access doors around classrooms
Description	We would integrate the cane card into Apple wallets to allow students to access their classrooms, dorms, library, and gym all in one.
Priority	0
Precondition(s)	Students must have an active Cane Card and an Apple Wallet-compatible device, as well as permission to specific areas.
Basic Flow	User accesses the university app or website. User then selects "Add Cane Card to Apple Wallet." System verifies the student's identity. Cane Card is added to Apple Wallet. Cane card is now accessible through the Apple device and ready to be used. Bring head of the IPhone to the sensor, in order to read information and allow access.

Postconditions(s)	Students/faculty are more efficiently able to access areas around campus such as classrooms, dorms, and the gym, and can do it all from their phones.
Use Case Diagram	<Link or number, if present>

3. **Checking Out Resources**

Title	Using the cane card via the apple wallet for accessing resources
Description	Students would be able to use their cane card from their phones in order to check out resources from school facilities
Priority	2
Precondition(s)	Students must have an active cane card with an apple wallet compatible device and have permission to use the specific resource
Basic Flow	User accesses the university app or website. User then selects "Add Cane Card to Apple Wallet." System verifies the student's identity. Cane Card is added to Apple Wallet. The user will then select the cane card in their apple wallet before tapping at an NFC scanner to check out the resource.
Postconditions(s)	Users are able to make check out resources with their cane card more efficiently, and use it even if they do not have the physical version
Use Case Diagram	<Link or number, if present>

1. Non-Functional Requirements

1. Performance

Title	How fast and efficient the digital Cane Card works on the operating systems.
Description	Transactions (e.g., scanning for entry or purchasing food) should be processed within 2 seconds under normal operating conditions.
Priority	0
Applicable FR(s)	This is applicable to the use of Dining Dollars, Access to Dorms, Classrooms, and the Gym, and Checking out resources.

2. Usability

Title	Ease of adding and accessing the cane card in the apple wallet
Description	The cane card must be able to be added to the apple wallet simply with minimal steps, and accessed easily with a double tap. It also should allow the user to easily view their remaining dining dollar balance.
Priority	2
Applicable FR(s)	This is applicable to the use of Dining Dollars, Access to Dorms, Classrooms, and the Gym, and Checking out resources.

3. Compatibility

Title	The application should be compatible with iOS devices running iOS 14 or later, as well as allow for physical CaneCard usage as well
Description	The Cane Card should be able to work on all IOS devices IOS 14 or later, as well as allow for people to still be able to use their physical Cane Cards.
Priority	0
Applicable FR(s)	This is applicable to the use of Dining Dollars, Access to Dorms, Classrooms, and the Gym, and Checking out resources.

1. System Constraints

1. Tool Constraints

1. **Apple Wallet API**

Title	Apple Wallet Integration
Description	The system must be compatible with Apple Wallet APIs
Priority	0

1. Language Constraints

1. **Programming Language**

Title	Programming Language
Description	The software must be developed using Swift for Apple Wallet integration
Priority	1

1. Platform Constraints

1. **iOS Only**

Title	iOS Exclusive Implementation
Description	Only available on devices that run iOS
Priority	2

1. Hardware Constraints

1. NFC Scanner Compatibility

Title	Scanner Hardware
Description	All campus scanners must support NFC technology.
Priority	0

1. Network Constraints

1. Wifi or Cellular Not Needed for Use

Title	Network not required for use of Cane Card, however, is required for setting up your Apple Wallet
Description	No wifi is needed to use the Cane Card at systems. However, if it is not set up on your device, then you need wifi to add it to your device.
Priority	3

1. Deployment Constraints

1. Incremental Deployment

Title	Testing before full rollout
Description	Have it be accessible from some areas of the campus first to allow for testing
Priority	3

1. Transition & Support Constraints

1. Physical Cane Card Still Usable

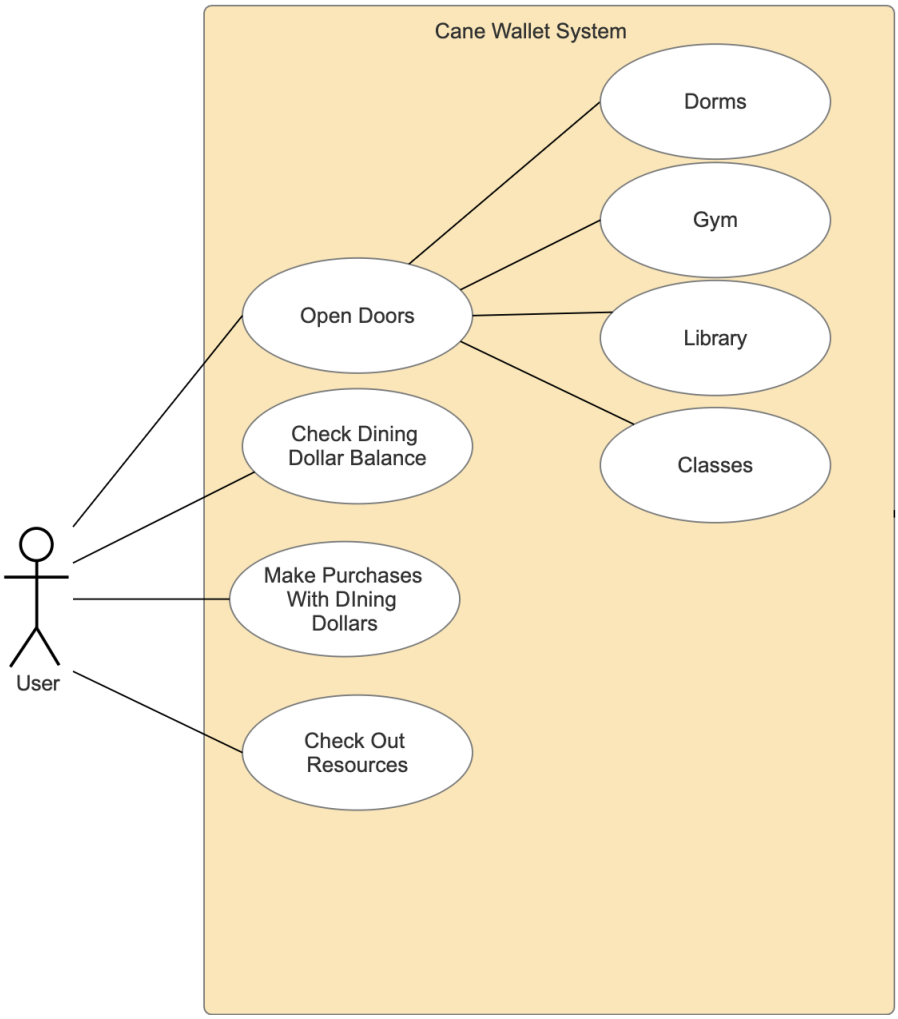
Title	Physical Cane Card still accessible by system
Description	If a student for any reason needed to use their physical Cane Card, they are still able to at the Dining Dollars, Classrooms, Dorms, and Gym.
Priority	0

1. Budget & Schedule Constraints

1. Limitations

Title	Budget Limitations
Description	Budget should cover the cost for software development, hardware upgrades, and the costs to deploy the software
Priority	1

3. Requirements Modeling



4. Evolutionary Requirements

1. Functional Requirements

1. Future Expansions

Title	Future Expansions for Android Users
Description	Although we will initially focus development for iOS devices, future versions of the program should also be considered for Android wallet.
Priority	4
Precondition(s)	The system must support multiple digital wallets and Android NFC scanners must be tested for compatibility with the established hardware
Postconditions(s)	Students with Android devices can use their Cane Cards digitally
Use Case Diagram	

1. Non-Functional Requirements

1. Improved System Performance

Title	Improved System Performance
Description	Future updates should aim to reduce transaction processing time to less than 1 second.
Priority	3
Applicable FR(s)	Dining Dollars Transactions Access to Dorms, Classrooms, Gym