Assignment 1	Project Summary
Course	**Web Application & Service Development with Spring Framework v5 - 2020**

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Project name	Card Management System

1. Short project description (Business needs and system features)

A Card Management System is always needed in the banking industry. The **Untitled card management system (UCMS)** provides ability for banks and bank services alike to send card production requests to card production centers, activate and deactivate cards, and authorize transactions. The system will be developed using **Spring 5 Application Development Framework**. It will implement web-based front-end client using **Thymeleaf** templates and **jQuery** or **React.js/Vue.js/Angular** JavaScript/TypeScript libraries for asynchronous page data updates. Each page will have a distinct URL, and the routing between pages will be done server side using **SpringMVC**. The backend will be implemented as a **REST/JSON API** using JSON data serialization. The main user roles (actors in UML) are:

• *Anonymous User* – has no access to the system, must be registered by *Administrator* or log in.

• *Registered User* - user registered by administrator, base abstraction.

• *Administrator* (extends *Registered User*) – can manage (create, edit user data and delete) all *Registered Users*.

• _Card production User_(extends _Registered User_) - can create requests for Producing new cards. Can view list of Production requests.

• _Card Management User_(extend _Registered User_) - can Activate and Deactivate cards. Can view lists of cards.

• _Audit User_ (extends _Regular User_) - can View Card production requests and card status changes.

• _Card Production System_ - receives card Production Requests and sends confirmation for produced cards.

• _Authorization System_ - sends request to CMS for checking cards active status and check pin.

2. Main Use Cases / Scenarios

Use case name	Brief Descriptions	Actors Involved
2.1. Login	_Anonymous User_ can enter username and password to gain access to the system.	_Anonymous User_
2.2. Register New User	_Administrator User_ can add new users to the system, giving them username, one time password and a set of permissions	_Administrator_
2.3. Change User Data	_Registered User_ can change their passwords and request permissions.	_Registered User_
2.4. Manage Users	_Administrator_ can browse and filter users based on different criteria: first and last name, email, Role.	_Administrator_

	Administrator can choose a *User* to manage, and can manage the chosen User - edit (using Change User Data UC) or delete. *Administrator* can create a new user using *Register UC*.	
2.5. Create Production Request	*Card Production User* can create requests for producing cards, specifying the type of card, the card number (PAN) the pre generated Pin Block, the client name, and the address for delivery of the card.	*Card Production User*
2.6. Revoke Production Request	*Card Production User* can revoke requests for producing cards, specifying the reason for deleting.	*Card Production User*
2.7. Activate card	*Card Management User* can Activate cards to be used as a payment method.	*Card Management User*
2.8. Deactivate card	*Card Management User* can Deactivate cards. Deactivate card can no longer be used as a payment method	*Card Management Uses*
2.9. Confirm Cards Produced	*Card Production System* sends confirmation for produced cards.	*Card Production System*
2.10. Authorize Transaction	*Authorization System* sends request for checking card active status and check pin, updates the pin try counter if needed	*Authorization System*
2.11. View Card Production Requests	*Administrator, Audit User, Card Production User* can view a list of card production requests.	*Administrator, Audit User, Card Production User*
2.12. Change Pin	*Authorization System* can send request to change pin providing the new value of the pin.	*Authorization System*

2.13. View Change card status request	*Administrator, Audit User, Card Management User* can view a list of card production requests.	*Administrator, Audit User, Card Management User*
2.14. Register new bin	Card management user can add new bins to the system	*Card management user*
2.15. Add new bin range	*Card management user* can add new bin ranges to the system	*Card management user*
2.16. Add keys	*Card management user* can add new keys	*Card management user*

3. Main Views (Frontend)		
View name	**Brief Descriptions**	**URI**
3.1. Home	Presents the introductory information for the purpose of the system as well as detailed instructions on how to start using it. Prominently offers ability to register.	/
3.2. Active Requests	Shows table with all requests. *Registered user* can browse and filter requests - cancelled, completed, pending requests. Card management user can change status of requests..	/requests
3.3. Request Change History	Audit User can view a history of all changes made to a card or request.	/requests/history
3.4. User Registration	Presents a view allowing the *Anonymous Users* to send a request for registration to the *Admin*.	/register
3.5. Login	Presents a login form for the user with a field for username and password.	/login

3.5 Edit user details	Registered user can request a change of permissions.	*/settings*
3.6. Add request	Form that a *Registered user* can use to submit a new request for creating, activating or deleting a certain card.	*/request-form*
3.7. Users	Presents ability to manage (CRUD) Users and their User Data (available for *Administrators* only, as described in UCs).	*/users*
3.8. About	Presents information about the project and his owner.	*/about*

4. API Resources (Backend)		
View name	**Brief Descriptions**	**URI**
4.1. Users	GET *User Data* for all users, and POST new *User Data* (Id is auto-filled by *CMS* and modified entity is returned as result from POST request). Available only for *Administrators*.	*/api/users*
4.2. User	GET, PUT, DELETE *User Data* for *User* with specified *userId*, according to restrictions described in UCs.	*/api/users/{userId}*
4.3. Login	POST *User Credentials* (e-mail address and password) and receive a valid *Security Token* to use in subsequent API requests.	*/api/login*
4.4. Logout	POST a logout request for ending the active session with *OKTS,* and invalidating the issued *Security Token*.	*/api/logout*
4.5. Production request	POST*Card production Request* filled by card production user with data for the card such as PAN, Pin Block, Name, Expiry Date and Address.	*/api/card-prod/request*
4.6. Production Revocation	POST Card revocation request to revoke production of previous card production request	*/api/card-prod/revoke/{requestId}*

4.7. Change Production status	PUT production status, used by card production system	/api/card-prod/status
4.8. Status Update	PUT change active status of card by card id	/api/cards/{pan}/status
4.9. Authorize transaction	GET checks card active status and pin, updates pin try counter if necessary	/api/authorize/{pan}{pvv/cvv}
4.10. Change Pin	PUT change the current pin of a given card, providing the new pin value in the request body.	/api/cards/{pan}/update-pin
4.11. Card Production Request	GET returns list of all card production requests and revocations by period	/api/reports/requests
4.12. Card Changes	GET returns list of all changes for a card	/api/reports/card/{pan}
4.13. Keys	PUT DELETE manage keys	/api/keys/{keyid}
4.14. Bins	PUT DELETE add/delete bins	/api/bins/{bin}
4.15. Bin Ranges	PUT GET DELETE manage bin ranges	/api/bin-range/{rangeId}