**KINGDOM OF SAUDI ARABIA**

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**Software Engineering (CS- 310)**

**BSCS- Section: 171**

**Project-Phase No: 02**

**MADA verification**

**(DD)**

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# **Abstract**

This DD document shows how our project will be linked to each other systems by defining each diagram of the systems. It will be clearly enough and easily to understand.

# **1 Introduction**

"MADA Verifications" is software system products will be a mobile application of mobile Banking verification operations, which helps people to verify their bank operations easier and faster currently the software can run on the Android platform, in the future will be able also on IOS platform and another OS.

The main goal of our project is to make bank operations easier for the user, also to raise the level of the operation's privacy by using face ID or fingerprint to verify the operation. To achieve this goal, we need to make sure that our project will work in secure systems and that what we will take care of in this phase and during the implementation.

After we submitted the project proposal, our team has completed the SRS document, which includes the requirement of the project. In this phase, we will describe the software using serval designs such as high and medium level, class diagram, use case etc.

# **2 Design**

## **2.1 High-level and medium-level design**

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**Figure 1: Subsystems Diagram**

**Description of subsystems are as follows:**

**MADA**

The MADA subsystem Is the head system of national banks that contains all bank operations. This subsystem linked with all local banks.

**Local banks**

The Local banks subsystems is any bank are under MADA subsystem such as, Alrajhi, Alanima, Alahli, etc. which is linked with MV subsystem.

This subsystem will be the mediator between MADA Verification and MADA subsystem.

**MADA Verification**

The MADA Verification is subsystem contains classes that process the main functionality of the software.

**GUI (Graphical User Interface)**

The GUI is subsystem contains classes that represent interface of the application.

## **2.2 Class Diagram**

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**Figure 2:Use Case Diagram**

## **2.3 Classes Methods Description**

### **2.3.1 MV Controller Class:**

The MV Controller Class is the class who is responsible to run all the tasks as a driver.

|  |  |
| --- | --- |
| Class | Controller |
| Method | Main |
| Visibility | Public |
| Return type | Void |
| Parameters, types | Card information: (String array) |
| Description | Main Method (Driver) |

### **2.3.2 MADA Verification Class:**

The MADA Verification Class is the class who is responsible for obtaining and arranging data from the database and using it on the program.

|  |  |
| --- | --- |
| Class | MADA verification |
| Method | AddingBankCard |
| Visibility | Public |
| Return type | Void |
| Parameters, types | CardInfo : BankCard |
| Description | This method adds new Bank Card in MV App. |

|  |  |
| --- | --- |
| Class | MADA verification |
| Method | RemoveBankCard |
| Visibility | Public |
| Return type | Void |
| Parameters, types | CardInfo : BankCard |
| Description | This method removes Bank Card in MV App. |

|  |  |
| --- | --- |
| Class | MADA verification |
| Method | AddingFaceID |
| Visibility | Public |
| Return type | Void |
| Parameters, types | None |
| Description | This method adds face id for the user. |

|  |  |
| --- | --- |
| Class | MADA verification |
| Method | VerifyOperation |
| Visibility | Public |
| Return type | Void |
| Parameters, types | None |
| Description | This method Verify a Bank operations. |

|  |  |
| --- | --- |
| Class | MADA verification |
| Method | AddingFingerPrint |
| Visibility | Public |
| Return type | Void |
| Parameters, types | None |
| Description | This method adds fingerprint for the user. |

|  |  |
| --- | --- |
| Class | MADA verification |
| Method | RemoveFaceID |
| Visibility | Public |
| Return type | Void |
| Parameters, types | None |
| Description | This method removes user FaceID |

|  |  |
| --- | --- |
| Class | MADA verification |
| Method | RemoveFingerPrint |
| Visibility | Public |
| Return type | Void |
| Parameters, types | None |
| Description | This method removes user fingerprint. |

### **2.3.3 MV View Class:**

The MV View Class is the class who will displays the user actions.

|  |  |
| --- | --- |
| Class | MV View |
| Method | viewUserCard |
| Visibility | Public |
| Return type | Void |
| Parameters, types | None |
| Description | This method will view user card in the user interface |

|  |  |
| --- | --- |
| Class | MV View |
| Method | viewUserLatestOperation |
| Visibility | Public |
| Return type | Void |
| Parameters, types | None |
| Description | This method will view user latest operation in the user interface |

|  |  |
| --- | --- |
| Class | MV View |
| Method | ViewVerifyingRequests |
| Visibility | Public |
| Return type | Void |
| Parameters, types | None |
| Description | This method will view the verifying requests in the user interface |

|  |  |
| --- | --- |
| Class | MV View |
| Method | ViewUserCardDetails |
| Visibility | Public |
| Return type | Void |
| Parameters, types | None |
| Description | This method will view user card details in the user interface |

|  |  |
| --- | --- |
| Class | MV View |
| Method | ViewUserSettings |
| Visibility | Public |
| Return type | Void |
| Parameters, types | None |
| Description | This method will view the settings in the user interface |

### **2.3.4 Bank Card Class:**

The BankCard Class is the class who is responsible for create a new Card for user.

|  |  |
| --- | --- |
| Class | Bank Card |
| Method | setCardName |
| Visibility | Public |
| Return type | Void |
| Parameters, types | cardName: String |
| Description | This method gives access to set card name. |

|  |  |
| --- | --- |
| Class | Bank Card |
| Method | setCardNumber |
| Visibility | Public |
| Return type | Void |
| Parameters, types | cardNumber: int |
| Description | This method gives access to set card number. |

|  |  |
| --- | --- |
| Class | Bank Card |
| Method | setCardExpireDate |
| Visibility | Public |
| Return type | Void |
| Parameters, types | cardExpire: int |
| Description | This method gives access to set card Expire date. |

|  |  |
| --- | --- |
| Class | Bank Card |
| Method | setSecureCode |
| Visibility | Public |
| Return type | Void |
| Parameters, types | cardSecure: int |
| Description | This method gives access to set card secure code. |

|  |  |
| --- | --- |
| Class | Bank Card |
| Method | setIBANNumber |
| Visibility | Public |
| Return type | Void |
| Parameters, types | cardIBAN: int |
| Description | This method gives access to set card IBAN number. |

|  |  |
| --- | --- |
| Class | Bank Card |
| Method | getCardName |
| Visibility | Public |
| Return type | String |
| Parameters, types | None |
| Description | This method will return the card name. |

|  |  |
| --- | --- |
| Class | Bank Card |
| Method | getCardNumber |
| Visibility | Public |
| Return type | int |
| Parameters, types | None |
| Description | This method will return the card number. |

|  |  |
| --- | --- |
| Class | Bank Card |
| Method | getExpireDate |
| Visibility | Public |
| Return type | Date |
| Parameters, types | None |
| Description | This method will return the card Expiring date. |

|  |  |
| --- | --- |
| Class | Bank Card |
| Method | getSecureCode |
| Visibility | Public |
| Return type | int |
| Parameters, types | None |
| Description | This method will return the card secure number. |

|  |  |
| --- | --- |
| Class | Bank Card |
| Method | getIBANNumber |
| Visibility | Public |
| Return type | int |
| Parameters, types | None |
| Description | This method will return the IBAN number. |

### **2.3.5 Date Class:**

The Date Class is the class who is hold date settings.

|  |  |
| --- | --- |
| Class | Date |
| Method | setDay |
| Visibility | Public |
| Return type | Void |
| Parameters, types | day: int |
| Description | This method gives access to set day on date. |

|  |  |
| --- | --- |
| Class | Date |
| Method | setMonth |
| Visibility | Public |
| Return type | Void |
| Parameters, types | month: int |
| Description | This method gives access to set month on date. |

|  |  |
| --- | --- |
| Class | Date |
| Method | setYear |
| Visibility | Public |
| Return type | Void |
| Parameters, types | year: int |
| Description | This method gives access to set year on date. |

|  |  |
| --- | --- |
| Class | Date |
| Method | getDay |
| Visibility | Public |
| Return type | int |
| Parameters, types | None |
| Description | This method gives access to get day on date. |

|  |  |
| --- | --- |
| Class | Date |
| Method | getMonth |
| Visibility | Public |
| Return type | int |
| Parameters, types | None |
| Description | This method give access to get month on date. |

|  |  |
| --- | --- |
| Class | Date |
| Method | getYear |
| Visibility | Public |
| Return type | int |
| Parameters, types | None |
| Description | This method give access to get year on date. |

### **2.3.6 MV Services Class:**

The MV Services Class is the class who is providing application services.

|  |  |
| --- | --- |
| Class | MV Services |
| Method | setEmail |
| Visibility | Public |
| Return type | Void |
| Parameters, types | email: String |
| Description | This method give access to set email. |

|  |  |
| --- | --- |
| Class | MV Services |
| Method | getEmail |
| Visibility | Public |
| Return type | Void |
| Parameters, types | None |
| Description | This method give access to get email. |

|  |  |
| --- | --- |
| Class | MV Services |
| Method | showLatestOperation |
| Visibility | Public |
| Return type | Void |
| Parameters, types | None |
| Description | This method shows latest bank card operation. |

|  |  |
| --- | --- |
| Class | MV Services |
| Method | showCardDetails |
| Visibility | Public |
| Return type | Void |
| Parameters, types | None |
| Description | This method shows bank card details. |

|  |  |
| --- | --- |
| Class | MV Services |
| Method | ContactUs |
| Visibility | Public |
| Return type | Void |
| Parameters, types | None |
| Description | This method helps user to contact with us. |

## **2.4 Use Case Diagram**

A close up of a map

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**Figure 3:Use Case Diagram**

## **2.5 Sequence Diagram**

A close up of a map

Description automatically generated

**Figure 4: Sequence Diagram for verifying an operation**

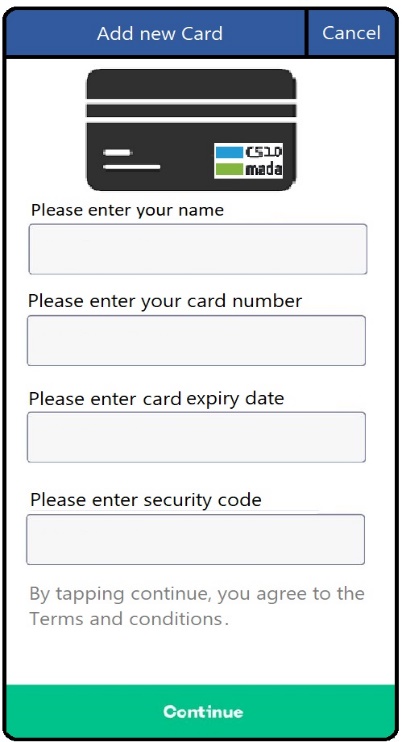
## **2.6 User Interface design**

This section contains snapshots of a prototype for the MV user interface.

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**Figure 5:** A snapshot of user interface HomePage allow user to choose between Adding new Card or Settings.

****

**Figure 6:** A snapshot of user interface for adding a new card to the MV application.

**A screenshot of a cell phone

Description automatically generated**

**Figure 7:** A snapshot of user interface for Security settings allow user to choose Verify method.

**A screenshot of a cell phone

Description automatically generated**

**Figure 8:** A snapshot of user interface for Latest Operations allow user to see his latest operations.

**A screenshot of a cell phone

Description automatically generated**

**Figure 9:** A snapshot of user interface for Card details allow user to see his Card details.

# **3 Conclusion:**

At the end of this DD document, we covered a complete designed description of MV System starting up with High-level and Medium-level diagrams, UML diagram, Use Case and ending of sequence diagram. also, we gave a prototype of user interfaces with descriptions.