Hospital Management System

Use Case and Misuse Case Diagrams

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Use case description

- **Register:** The first time patient will register initially so that the patient can get username and password.

- **Login:** The user need to provide username and password to login into the system.

- **Doctor appointment:** This will give the information regarding name of the doctor, date and time schedule of appointment.
use case description

• **Patient information:** This consists of patient name, details, identifying card and patient history etc.

• **Payment:** This deals with the payment options such as credit or debit card, and the card details and previous payments etc.
Identification of actors

- **Patient:** The patient is the person who initially registers with the system.
- **Administrator:** The person who maintains all these functions in between actors and will take care of overall system.
- **Database:** The database contains all the details of the patients, patient records, and details of payments.
use case diagram:

- Patient
- Administrator
- Database

Activities:
- Registers
- Login
- Doctor appointment
- Patient information
- Payment details
Misuse case description

- Misuser can hack the login details of the user and can access user’s information. This can be mitigated by applying cryptographic methods to the user’s information.

- Misuser can hack the patient information which includes previous medical history and personal details like SSN number etc. To mitigate this encryption processes should be applied.

- Misuser can access payment details which includes credit or debit card information. To mitigate this cryptographic encryption methods should be adopted.
Registration:

Patient -----> Name -----> Present address -----> Any Identity card -----> Database
Login:

- Username
- Password
- Patient
- Database
Login:

- **Patient**
- **Database**

**Username**
- Threatens
- **Password**
- **Mitigates**
  - **<<includes>>**
  - **<<extends>>**
- Applies cryptographic methods
- **Mitigates**
- **Hacks user name**
- **Hacks password**
- **Misuser**
Misuser activities

• Misuser can hack the user name easily so that he can access the information.
• To eradicate this a password can be used. But a password also can be hacked.
• Thus some cryptographic methods can be used to provide maximum protection.
Doctor appointment:

- Name of the Doctor
- Doctor identity card
- Date and time of appointment

Patient

Database
Patient information:

- Name
- Present Address
- SSN number
- Previous health record
- Tests information

Patient

Database
Patient information:

- **Name**
- **Present Address**
- **SSN number**
- **Previous health record**
- **Tests information**

Threatens:
- Encrypting the contents
- Hacks the information
- Hacks the patient personal details

Mitigates:
- Apply cryptographic methods
Misuse case description

• The misuser hacks the information of the patient such as patient name, SSN number, health record and test information.

• Thus the encryption and other cryptographic methods can be applied to provide security to the patient information.
Payment details:

- Name
- Address
- Card number
- Expiration date
- CVV number

Patient → Administrator → Database
Payment details:

- Name
- Address
- Expiration date
- Card number
- CVV number
- Shipping address
- Billing address

Hacks the details

Threatens

Use cryptographic techniques

Mitigates
Misuse case description

• The misuser can hack the bank account details such as card number, expiration date, CVV number and etc. so that the misuser can use those details.

• This can be mitigated by encrypting all those details by using cryptographic and steganographic techniques.
Use case Vs Misuse case diagram:

- Registers
- Login
- Doctor appointment
- Patient information
- Payment
- Administrator
- Misuser
- Database

Threatens

Mitigates

Cryptographic methods should be used

Encryption should be performed

Cryptographic methods should be used

Hacks the login details

Hacks the information

Hacks the bank account details

Use case Vs Misuse case diagram: