OBJECT ORIENTED ANALYSIS AND DESIGN PROJECT

MINI CASE STUDY

PASSPORT AUTOMATION SYSTEM

SUBJECT CODE: CS6110

SUBJECT NAME: OBJECT ORIENTED ANALYSIS AND DESIGN

BATCH: P

DATE: 07-11-2020

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Chapter 1: INTRODUCTION

1.1 OBJECTIVE

To develop a passport automation system

1.2 PROBLEM STATEMENT

Passport automation system is used in the effective dispatch of passport to all the applicants. This system adopts a comprehensive approach to minimize the manual work and schedule resources, time in a cogent manner. The core of the system is to get the online registration form with details such as name, address etc., filled by the applicant whose testament is verified for its genuineness by the passport automation system with respect to already existing information in the database. The applicant applies for a new or renewal of the passport. Depending upon the status, the administrator proceeds for the automation. Each application has a unique file no. For the application process, the applicant pays through net banking, credit cards, phone banking etc.,The database updates all the details of the applicant. The database generates a unique ID to the applicant. The administrator uses the ID to refer the applicant. The applicant details are to be verified properly by the administrator. The admin fixes the appointment using the scheduler to fix the time and date for the appointment. The admin calls for the police to check over the details of the applicant. Therefore, the police assists the admin in verification process. The system also provides the applicant with the dates for appointment to document verification. The admin forwards the applicant details to the police for separate verification whose report is the presented to the administrator. Any forfeiting identified in the details can make the applicant liable to penalty as per the law. After thorough verification, the administrator dispatches the passport and ensures the passport reaches the applicant.If the entire process of Issue of Passport is done in manual manner, it takes several months for the passport to reach the applicant. A s this is the matter of National Security, the system has been carefully verified and validated in order to satisfy it.

1)Manual Process

2)Time consumption

3)Database Management

4)Database Security

1.3 SCOPE

- The system provides the online interface to the user where we can fill their form and personal detail with necessary proof.
- To process it in speedy manner.
- Provides communication platform between administrator and applicant.
- To transfer the data between passport authority and local police verifying the applicant information.

1.4 PROJECT DESCRIPTION

- To create an interface between applicant and administrator
- In the project, we will develop the 5 modules such as login, fill the form with necessary proof, verifying the applicant's information, validity checking and issue the passport of that particular applicant.
- In this login module, we can perform that enters into the login website for the different actors, and then fill for that can be done by the primary and verification, validation and checking and issuing the passport can be done for the supporting actor.
- The core step is to get the online registration form with details such as name, address, etc. filled by the applicant whose details and documents to be verified.
- The first step is filling of the online passport application form by the applicant and payment of the fees.
- The application is then processed manually based on the report given by the system.

o The system forwards the necessary details to the police for its separate verification whose report is then presented to the administrator. The administrator will be provided with an option to display the current status of application to the applicant, which they can view in their online interface.

o After all the necessary criteria has been met, the original information is added to the database and the passports is sent to the applicant.

1.5 USE CASES EXAMPLE

ACTORS: Applicant, Administrator, Police

USE CASES:

1. **REGISTER DETAILS**:

   Applicant registers his/her personal details for verification.

2. **PROCESS APPLICATION**:

   Administrator processes the application and moves it for certificate verification.

3. **VERIFY DETAILS:**

   Address and ID proof of the applicant is verified with the submitted details.

4. **POLICE VERIFICATION**:

   Regional Police receives the applicant's details from the administrator for the address confirmation. Police allots a timeslot for address confirmation and also notifies the applicant.

5. **CHECK STATUS:**

   The applicant can check the status of his/her application.

6. **DISPATCH PASSPORT**:

After the address confirmation by Regional Police, the Administrator decides whether or not to issue passport to the Applicant. The passport will be dispatched after the Admin's Approval.

STAKEHOLDERS AND THEIR INTERESTS:

• Applicant - They are the people who desires to obtain the passport and submit the information to the database.

• Administrator - He has the certain privileges to add the passport status and to approve the issue of passport. He may contain a group of persons under him to verify the documents and give suggestion whether or not to approve the dispatch of passport.

• Police - He is the person who upon receiving intimation from the PAS, perform a personal verification of the applicant and see if he has any criminal case against him before or at present. He has been vetoed with the power to decline an application by suggesting it to the Administrator if he finds any discrepancy with the applicant. He communicates via this PAS.

USE CASE: POLICE VERIFICATION

ON SUCCESS: Police confirms the Applicant's registered address and approves the process.

1. Regional Police receives the Applicant's information.
2. Police allots a time slot for address confirmation of a particular applicant.
3. Applicant is notified with the timeslot by the Police.
4. Applicant's address is verified and confirmed by the Police and forwards the confirmation to the administrator.

Chapter 2: USECASE MODELLING

2.1 IDENTIFIED ACTORS

APPLICANT:

- Applicant is the primary actor.
- The applicant decides whether to apply or renew the passport and submit the information to the database.

ADMINISTRATOR:

- Administrator is the supporting actor.
- The administrator is responsible for the entire process involved in the passport automation system.

POLICE:

- Police is also a supporting actor.
- Police will verify and confirm the applicant details like address, certificates, ID proof, etc.

DATABASE:

- Database is an offstage actor.
- The database contains all the information about the applicant and passport.

2.2 USECASES – FULLY DRESSED FORMAT

USECASE 1: *APPLICANT DETAILS*

SCOPE: Passport Automation System

LEVEL: User Goal

PRIMARY ACTORS: Applicant

BRIEF DESCRIPTION: This use case allows the applicant to enter the details such as name, age, gender, address, contact details, etc.

STAKEHOLDERS AND THEIR INTERESTS:

APPLICANT**:** The applicant enters the required details for a new passport or renewal.

DATABASE: The database store the applications details for further processing.

PRECONDITIONS: Specifying the applicant details

SUCCESS GUARANTEE: The entered details are stored in the database.

MAIN SUCCESS SCENARIO: 1) This use case starts when the applicant enters the details.

2) The database accepts the applicant details.

ALTERNATE FLOW: If the mandatory field is not filled, the prompt message is displayed.

USECASE 2: *STATUS ENQUIRY*

SCOPE: : Passport Automation System

LEVEL: User Goal

PRIMARY ACTORS: Applicant

BRIEF DESCRIPTION: This use case generates the process of applying and renewing the passport.

STAKEHOLDERS AND THEIR INTERESTS:

APPLICANT**:** The applicant selects whether to apply for a new passport or renew the passport.

ADMINISTRATOR**:** The admin processes the applicant details based on the applicant's selection.

PRECONDITIONS: Selecting the status.

SUCCESS GUARANTEE: If this use case is successful, the applicant's detail will be further proceeded in the process of new process or renewal.

MAIN SUCCESS SCENARIO: 1) This use case starts when the actor wishes to apply for a new passport or to renew the passport.

2) The admin monitors this use case and proceeds for further processing based on the applicant's details.

ALTERNATE FLOW: If the mandatory field is not filled, the prompt message is displayed.

For a new passport status, the applicant will receive a unique ID, proceed for certificate and address verification and confirmation. The passport will be dispatched on success.

For a renewal status, the applicant will receive a unique ID, the certificates will be verified and the renewal will be approved.

USECASE 3: GENERATE UNIQUE ID

SCOPE: Passport Automation System

LEVEL: User Goal

BRIEF DESCRIPTION: This use case generates and issues unique ID for each applicant.

STAKEHOLDERS AND THEIR INTERESTS:

DATABASE: The database generates a unique ID for each applicant.

ADMINISTRATOR: The admin uses the unique ID to refer and process each application.

PRECONDITIONS: The applicant's details are forwarded to the admin.

SUCCESS GUARANTEE: Unique ID is generated for each application based on the details provided.

MAIN SUCCESS SCENARIO: 1) When the applicant submits their details, the database generates an unique ID for each applicant.

ALTERNATE FLOW: When the status given by the applicant is not recognized, the details are invalid and unique ID is not created.

USECASE 4: *NEW*

SCOPE: Passport Automation System

LEVEL: User Goal

PRIMARY ACTORS: Applicant

BRIEF DESCRIPTION: This use case allows the applicant to apply for the first time registration of the passport.

STAKEHOLDERS & INTERESTS:

APPLICANT: The applicant registers to get the passport for the first time.

ADMINISTRATOR: The admin enquires and accept the registration.

PRECONDITIONS: Specifying the main aim of applicant for registration

SUCCESS GUARANTEE: The entered details of the applicant are examined by the admin and looks for the main aim or reason for registration.

MAIN SUCCESS GUARANTEE: 1) The applicant fills the required details in the form specifying the first registration to issue the passport.

2) The admin gets the applicant details from the database and enquires the status for further appointment.

ALTERNATE FLOW: If the applicant details filled in the registration form are found missing, then the admin does not proceed further.

USECASE 5: *RENEWAL*

SCOPE: Passport Automation System

LEVEL: User Goal

PRIMARY ACTORS: Applicant

BRIEF DESCRIPTION: This use case allows the applicant to apply for the renewal of the passport as the validity expires.

STAKEHOLDERS & INTERESTS:

      APPLICANT: The applicant registers to renew the passport.

      ADMINISTRATOR: The admin enquires and accept the registration.

PRECONDITIONS: Specifying the main aim of applicant for registration

SUCCESS GUARANTEE: The entered details of the applicant are examined by the admin and looks for the main aim or reason for the registration.

MAIN SUCCESS SCENARIO: 1) The applicant fills the required details in the form specifying the need to renewal of the passport.

      2) The admin gets the applicant details from the database and enquires the status for further appointment. The admin checks the previous travel details

ALTERNATE FLOW: If the applicant details filled in the registration form are found missing, then the admin does not proceed further. The admin closes the old passport if there were any issues.

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USECASE 6: *APPOINTMENT*

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SCOPE: Passport Automation System

LEVEL: User Goal

PRIMARY ACTORS: Applicant

BRIEF DESCRIPTION: This use case allows the admin to fix an appointment after the unique ID is created.

STAKEHOLDERS & INTERESTS:

APPLICANT: After the generation of the unique ID, the applicant waits to get notified with a timeslot for an appointment.

ADMINISTRATOR: The admin orderly arranges the ID and fixes an appointment with a timeslot for the applicant to proceed further for verification.

PRECONDITIONS: Getting a unique ID

SUCCESS GUARANTEE: The appointment is fixed for the applicant for further verification.

MAIN SUCCESS SCENARIO: 1) The admin gets the ID of the concerned applicant and fixes the appointment.

2) The applicant receives an intimation from the admin regarding the appointment for verification.

ALTERNATE FLOW: If the applicant fails to get intimation about appointment, it means his/her registration is cancelled.

USECASE 7: _VERIFICATION_

SCOPE: Passport Automation System

LEVEL: User Goal

BRIEF DESCRIPTION: This use case allows to verify the applicant details for validation.

STAKEHOLDERS & INTERESTS:

ADMINISTRATOR: The admin checks for the police to look into the applicant details and gets the verified confirmation status.

POLICE: The Police receives intimation from the Admin and performs a verification of the applicant details like their photograph, certificates, address proof, phone number, etc.

PRECONDITIONS: Police is identified and authenticated.

SUCCESS GUARANTEE: Police submits the verified details to the admin.

MAIN SUCCESS SCENARIO: 1) With the details submitted by the applicant, the admin notifies the police to check over the details of the applicant.

2) The police checks over the address proof and other details.

3) After verification, Police sends the verified report to the admin.

ALTERNATE FLOW: If the details submitted by the applicant is not true and if found any mismatch with the proof, the police closes the registration.

USECASE 8: *DISPATCH PASSPORT*

SCOPE: Passport Automation System

LEVEL: User Goal

BRIEF DESCRIPTION: This use case allows the admin to issue the passport to the applicant.

STAKEHOLDERS & INTERESTS:

ADMINISTARTOR: This use case allows the admin to issue the passport after all verification process.

PRECONDITIONS: After thorough approval of applicant details

SUCCESS GUARANTEE: The applicant gets an intimation that his/her passport gets final approval from the admin.

MAIN SUCCESS GUARANTEE: 1) After the verification status report received from the police, the admin finally approves and dispatches the passport to the applicant.

ALTERNATE FLOW: If the verification report is closed the registration, the admin does not issue the passport.

2.3 USE CASE DIAGRAM

Chapter 3: DOMAIN MODELLING

3.1 IDENTIFICATION OF CLASSES

- Applicant
- Administrator
- Police
- Database
- Status
- Verification
- Appointment

- Dispatch
- ID generation
- Application
- Registration form
- Testament
- New
- Renewal
- Passport
- Information
- Automation
- Report
- Penalty
- Scheduler
- Payment
- Phone Banking
- Net Banking
- Card Payment

By eliminating some spurious classes:

<u>Redundant classes</u>: The classes Application and Registration express the same concept. Therefore, we keep the most descriptive name.

<u>Irrelevant classes</u>: The class Penalty is little or nothing to do with the problem. Therefore, we eliminate that class.

3.2 CONFIRMATION OF CLASSES

APPLICANT

ADMINISTRATOR

POLICE

DATABASE

STATUS

APPLICATION

TESTAMENT

VERIFICATION

DISPATCH

PAYMENT

NET BANKING

PHONE BANKING

CARD PAYMENT

FILENO

APPOINTMENT

SCHEDULER

ADDRESS

3.3 DATA DICTIONARY

Applicant -

The applicant decides whether to apply or renew the passport and submit the information to the database. The applicant needs to register properly without errors and has to submit valid proofs to the admin. In case of the renewal of passport, the old passport must also be submitted by the applicant.

Administrator –

The administrator is responsible for the entire process involved in the passport automation system. The admin plays a very important role in PAS in ensuring correctness of

information submitted by the applicant. The admin checks over the registration and stores the information into the database.

Police –

Police will verify and confirm the applicant details like address, certificates, ID proof, etc. The police assists the admin in checking the details of the applicant. Police ensures only valid and true details are submitted by the applicant.

Database –

Police and the administrator will verify and confirm the applicant details like address, certificates, ID proof etc., taken from the database. It consists of plenty of information and allows the admin to use the details of the applicant whenever needed.

Application –

The applicant registers for the issual of the passport with necessary details such as name, age, gender, address, certificates, etc.

File.No-

The File.No is a unique number which includes alphabets and numbers to differentiate between all the other applications. A file.no is created everytime and application is submitted and the application is stored in the database. The generated File.No is used to access the application in various stages of Passport Application.

Payment-

The Payment allows the Applicant to pay for the Application. The Application will not be further processed without payment.

Card Payment-

Card Payment is one of the Payment modes provides by the Passport Automation System for payment. The payment can be done using credit or debit card.

Net Banking-

Net Banking allows the applicant to pay for the application using internet banking facility.

Applicant's who have a net banking Id can use this mode of payment.

Phone Banking-

Phone Banking is used to pay for the Application using phone Banking facility.

Applicant's who prefer UPI payment method can use phone banking to pay for application.

Appointment –

The admin fixes an appointment for verification of applicant's details. It is very important to check the details submitted by the applicant.

Testament –

The applicant registers for passport issual by submitting some valuable documents as a matter of proof like address, certificates, etc., Only correct proofs are accepted and validated. Incorrect and false details submitted are not taken into account and the registration is thus cancelled.

Address-

Address is provided in the Testament by the Applicant. This address is attached to the Application and is verified by the Police in the Verification process.

Scheduler-

The Scheduler is used by the Administrator to fix an Appointment for the police to verify Applicant's address and certificates.

Verification –

The admin ensures that only the correct details are submitted by the applicant through verification of testament. This is actually done by the police as requested by the admin.

Status –

The admin needs to understand the necessity for registration done by the applicant whether it is for new or renewal of the passport. According to the status or purpose of the registration, the admin proceeds the automation system process.

Dispatch –

After thorough verification, the admin dispatches the passport and ensures it reaches the applicant.

3.4 ASSOCIATIONS

- Applicant **fills** Application

- Applicant **provides** Testament

- Applicant **enters** the Status for the application

- Application details **stored in** Database

APPLICATION — stored in — DATABASE

- Administrator **checks** the Status

ADMINISTRATOR — checks — STATUS

- Application **requires** Status

APPLICATION — requires — STATUS

- Verification **gets** details from the Database

VERIFICATION — gets — DATABASE

- Administrator **extracts** details from Database

ADMINISTRATOR — extracts — DATABASE

- Administrator **fixes** an Appointment

ADMINISTRATOR — fixes — APPOINTMENT

- Applicant **gets notified to** Appointment

APPLICANT — gets notified to — APPOINTMENT

- Testament is **attached to** Application

TESTAMENT — attached to — APPLICATION

- Appointment is **fixed for** Verification

APPOINTMENT — fixed for — VERIFICATION

- Administrator **finds** the Police

- Police **verifies** during Verification.

- Verification is **submitted to** Administrator
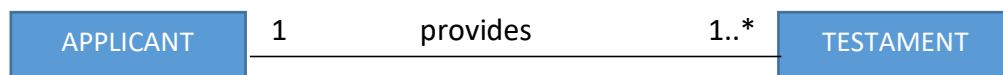

- Administrator **approves** the dispatch of passport
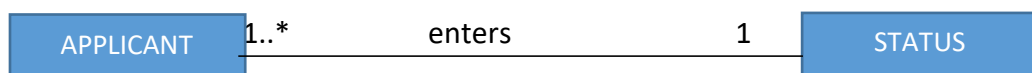
3.5 MULTIPICITY

- An applicant fills a single application form.

| APPLICANT | 1   fills | APPLICATION |

- An applicant provides many Testaments as proof documents.

| APPLICANT | 1   provides   1..* | TESTAMENT |

- One or many applicants enters a single status whether it is for new registration or renewal of passport. It can't be both.

| APPLICANT | 1..*   enters   1 | STATUS |

- One or Many Testaments are attached to an application as a matter of proof.

| TESTAMENT | 1..*   attached to | APPLICATION |
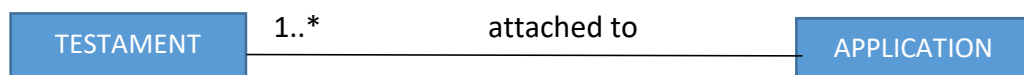
- An application takes a single status whether it is for new or renewal of passport.

| APPLICATION | 1   requires | STATUS |
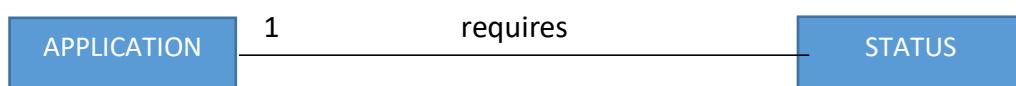
- One or many application details are stored in the single database.

| APPLICATION	1...*	stored in	1	DATABASE
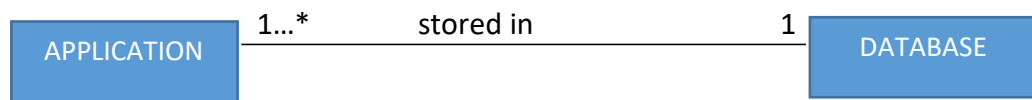
- An administrator checks the status of the application whether it is for new or renewal of passport.

ADMINISTRATOR	1	checks	1	STATUS
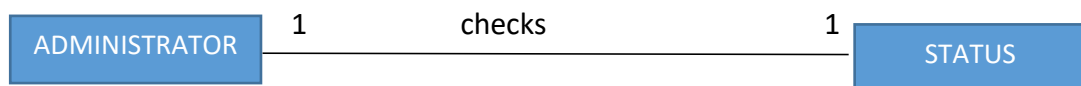
- An administrator extracts the applicant details from the single database.

ADMINISTRATOR	1	extracts	1	DATABASE
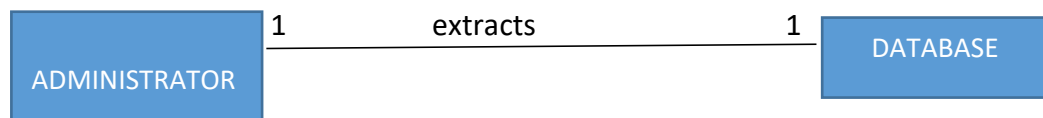
- An administrator finds a Police officer for verification. A single police offer can assist the admin.

ADMINISTRATOR	1	finds	1	POLICE
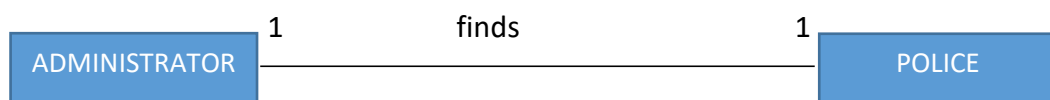
- An administrator fixes one or many appointments for verification.

ADMINISTRATOR	1	fixes	1..*	APPOINTMENT
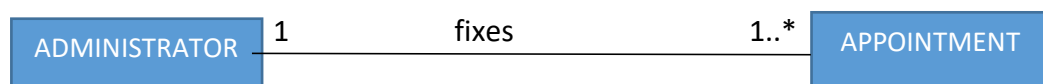
- An applicant gets notified for a single appointment.

| APPLICANT | 1 | gets notified to | 1 | APPOINTMENT |
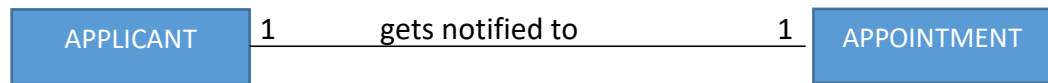
- An appointment is fixed for a particular verification.

| APPOINTMENT | 1 | fixed for | 1 | VERIFICATION |
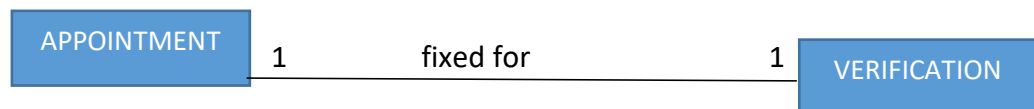
- For a particular verification, the details are fetched from a single database.

| VERIFICATION | 1 | gets | 1 | DATABASE |

- A Police verifies one or more verification process.

| POLICE | | | VERIFICATION |
| 1 | verifies | 1..* | |

- One or many verification report is submitted to the single administrator.

| | 1..* | submitted to | 1 | |
| VERIFICATION | | | | ADMINISTRATOR |
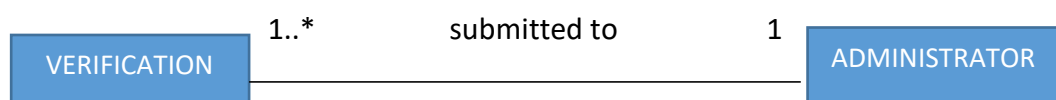
- An administrator approves and dispatches one or many passports.
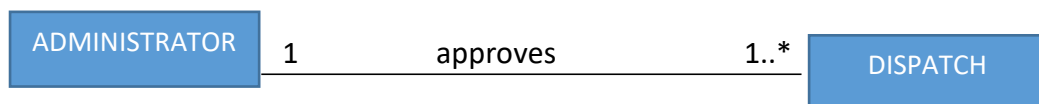
3.6 DOMAIN DIAGRAM
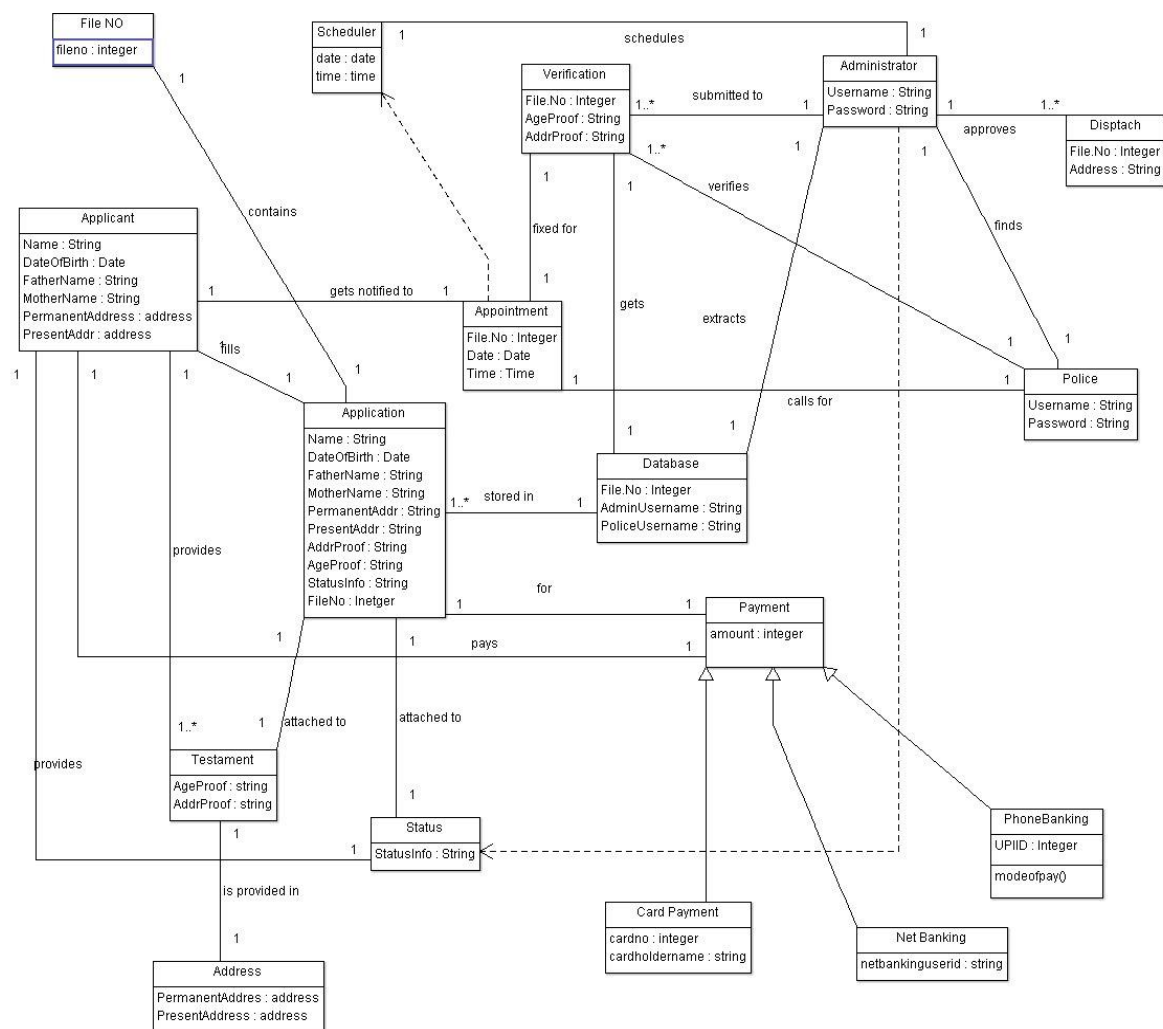
Chapter 4 : CLASS MODELLING

4.1 CLASSES, ATTRIBUTES AND OPERATIONS

1. APPLICANT:

The applicant class shows the personal informations filled by the applicant at the initial stage of passport application.

ATTRIBUTES:

      1.Name

      2.Date Of Birth

      3.Father's Name

      4.Mother's Name

      5.Permanent Address

      6.Present Address

OPERATIONS:

    Enterdetails(): Allows the applicant to enter details and submit the form.

    Acknowledge(): Allows applicant to acknowledge to the notifications.

    AttendsVerification(): Allows applicant to attend the verification process.

    GiveStatus(): Allows applicant to enter the status of application.

    EnterAddress(): Allows applicant to enter his/her address.

    EnterAgeProof(): Allows applicant to provide age proof for verification.

2. ADDRESS:

The Address class is a datatype class of address type.

ATTRIBUTES:

    1.Permenant Address

    2.Present Address

OPERATIONS:

    SaveAddress(): Allows to attach address to the testament.

3. TESTAMENT:

The testament class is used for the submission of the certificates required for the verification of age and the address.

ATTRIBUTES:

    1.Age Proof (Birth Certificate/10th Marksheet)

    2.Address Proof(Family Card/Aadhar Card)

OPERATIONS:

    IncludeTestament():Allows the applicant to choose which of the documents he/she is going to present for address and certificate verification.

    AddAddress(): Allows to attach the Address to the testament for application.

4. FILE.NO:

The File.no class is a datatype class of type File.No, as the file.no is a combination of letters and numbers.

<u>ATTRIBUTES:</u>

    1.File.No

<u>OPERATIONS:</u>

    FileNo(): Allows to attach the File.No for each application to identify the applicant.

5. **APPLICATION:**

    The application class creates a FILE.NO for all the received applications and merges the personal details and the selected testament into one File.This FILE.NO helps in processing and verification of the application.

<u>ATTRIBUTES:</u>

    1.File.No

    2.Name

    3.Date Of Birth

    4.Father's Name

    5.Mother's Name

    6.Permanent Address

    7.Present Address

    8.Age proof

    9.Address proof

10.Status

CreateFileNo(): Creates a unique FILE.NO for each application which will be used in further processing of the application.

StoreApplication(): Allows to store the application in database for further processing.

6.STATUS:

The status class allows the applicant to indicate whether the application is for a New Passport or a Renewal.

ATTRIBUTES:

1.StatusInfo

OPERATIONS:

SubmitStatus(): Allows the applicant to submit the status of his/her application.

7.PAYMENT:

The Payment class allows the applicant to pay for passport application

(New/Renewal).

ATTRIBUTES:

1.Amount

OPERATIONS:

MakePayment(): Allows the Applicant to make payment for his/her Application.

8.CARD PAYMENT:

The Card Payment class allows the applicant to pay using credit/debit card for his/her application

ATTRIBUTES:

1.CardNumber

2.CardHolderName

OPERATIONS:

ModeofPay(): Allows the applicant to pay using credit/debit card.

9.NET BANKING

The Net Banking class allows the applicant to pay for application using Internet Banking.

ATTRIBUTES:

1.NetBankingUserID

OPERATIONS:

ModeofPay(): Allows the Applicant to pay using Net Banking.

10.PHONE BANKING:

The Phone Banking class allows the applicant to pay for the application using Phone Banking.

ATTRIBUTES:

     1.UPIID

OPERATIONS:

     ModeofPay(): Allows the applicant to pay using Phone Banking

11.DATABASE:

The Database class stores the application details using the FILE.NO for processing and the details of the admin and police who access the database for fetching applicant details.

ATTRIBUTES:

     1.File.No

     2.AdminUsername

     3.PoliceUsername

OPERATIONS:

     FileNo(): Allows database to store the FileNo of the application.

     Acknowledge(): Allows Database to acknowledge for the actions received.

     EnterApplicantStatus(): Allows Database to store the status of application.

     CreateRegistrationForm(): Allows Database to create registration form for applying.

12.ADMIN:

The Admin class allows the admin to process the applicant details, fix an appointment for verification, pass the application for police verification and dispatch the passport.

1.Username

2.Password

OPERATIONS:

GetFileNo(): Allows admin to get file number from database.

RejectApproval(Fileno): Allows admin to reject approval for invalid application.

AcceptApproval(FileNo): Allows admin to approve a valid passport.

GetAddress(FileNo): allows admin to get address for dispatching.

ReadyToDispatch(Address): allows admin to provide address for dispatching.

ChecksCalendar(): Allows admin to check available dates for verification.

Dispatch(Fileno): allows admin to approve a dispatch.

FixesAppointment(): allows admin to fix appointment for verification.

Finds(): allows admin to find an appropriate police for verification.

AsksToAttachTestament(): admin reminds to attach testament with application.

NoTestamentNeeded(): admin informs that testament is not needed for renewal status.

13.SCHEDULER:

The Scheduler class is used by the Admin to Schedule an appointment for verification.

ATTRIBUTES:

1.Date

2.Time

OPERATIONS:

ShowAvailableDates(): shows the available dates for verification.

AppointmentInfo(): sends the appointment information.

14.POLICE:

The Police class allows the police to login the database to fetch applicant details for address and certificate verfification.

ATTRIBUTES:

1.Username

2.Password

OPERATIONS:

Available(): indicates that police is available on that fixed date.

NotAvailable(): indicates that police is not available on that fixed date.

InformsVerification(): informs verification information to the applicant.

InitiateVerfication(): allows Police to start verification.

Acknowledge(): allows Police to acknowledge for actions received.

15.APPOINTMENT:

The Appointment class is used by the admin to notify the Applicant and Police about the scheduled appointment for verification.

ATTRIBUTES:

     1.File.No

     2.Date

     3.Time

OPERATIONS:

CallsFor(): informs the verification date and time to police and applicant.

ConfirmAppointment(): used to confirm the appointment date in accordance with police.

NotifyAppointment(): Notifies the date and time of verification to the applicant and the police.

16.VERIFICATION:

The Verification class allows the police to verify the applicant's age and address and updates the status to the admin.

ATTRIBUTES:

1. File.No
2. Age Proof
3. Address Proof

OPERATIONS:

AsksFor(): Allows the police to verify the address and age proof of an applicant.

SubmittedTo(): The approval of the verification is updated to the admin.

17.DISPATCH:

The Dispatch class delivers the admin approved Passport to the Applicant.

ATTRIBUTES:

1.File.No

2.Address

Deliver(): The passport will be delivered to the applicant.

4.2 GENERALISATIONS, DEPENDENCY, AGGREGATION, COMPOSITION

GENERALISATIONS :

1) Different modes of PAYMENTS are generalized into PAYMENT class

    Card payment, Net Banking and Phone Banking are various modes of

    payment. Hence, they are generalized into Payment class

AGGREGATIONS :

1) TESTAMENT is a part of APPLICATION
2) STATUS is a part of APPLICATION

COMPOSITIONS :

1)APPLICATION has a FILE.NO.

    File.No is important to distinguish each application.

2)APPOINTMENT is for APPLICANT and POLICE.

    Appointment is fixed for Applicant and Police for verification.

3)VERIFICATION has a POLICE

    Verification is done by the Police.

4)TESTAMENT has an ADDRESS.

    Testament is for providing the address proof for verification.

DEPENDENCY:

1) Administrator depends on Status for processing. The change in Status Information can affect the processing of the Application.

2) Appointment depends on scheduler to notify the appointment details to the Applicant and Police.

4.3 CLASS RESPONSIBILITY COLLABORATION DIAGRAM

Class responsibility collaboration diagram is drawn to find the responsibilities of the particular class and the other classes collaborated in the system.

APPLICANT	
Acknowledge() *AttendsVerification()* *GiveStatus()* *EnterAddress()* *EnterAgeProof()* *EnterDetails()*	Status Testament Application Dispatch

APPLICATION	
CreateFileNo() *StoreApplication()*	Database FileNo Testament Status

FILENO	
FileNo()	Application

TESTAMENT	
AddAddress() *IncludeTestament()*	Applicant Application Address

ADDRESS	
SaveAddress()	Testament

STATUS	
Acknowledge()	Applicant Application

PAYMENT	
MakePayment()	Application
	CardPayment
	PhoneBanking
	NetBanking

CARDPAYMENT	
ModeOfPay()	Payment

NETBANKING	
ModeOfPay()	Payment

PHONEBANKING	
ModeOfPay()	Payment

SCHEDULER	
ShowsAvailableDates()	Administrator
AppointmentInfo()	Appointment

DATABASE	
FileNo()	Application
Acknowledge()	Verification
EnterApplicationStatus()	Administrator
CreateRegistrationForm()	

ADMINISTRATOR	
GetFileNo()	Status
RejectApproval(FileNo : integer)	Scheduler
AcceptApproval(FileNo : integer)	Database
GetAddress(FileNo : integer)	Verification
ReadyToDispatch(Address : Address)	Police
Dispatch(FileNo : integer)	Dispatch
ChecksCalendar()	
FixesAppointment()	
Finds()	
AskToAttachTestament()	
NoTestamentNeeded()	

VERIFICATION	
AskFor() *SubmittedTo()*	Appointment Database Police Administrator

DISPATCH	
Deliver()	Administrator Applicant

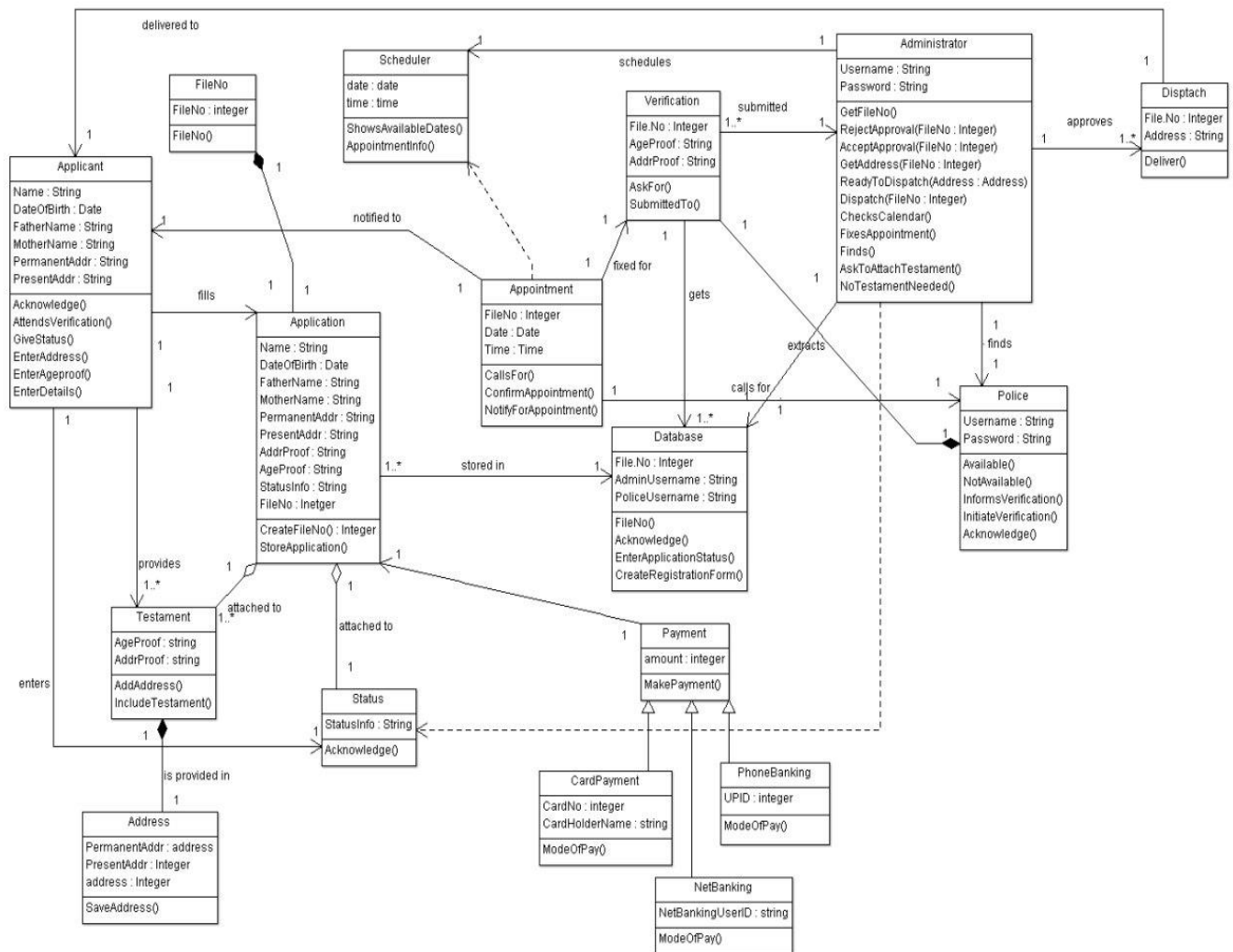| POLICE	
Available() NotAvailable() InformsVerification() InitiateVerification() Acknowledge()	Appointment Administrator Verification

4.4 CLASS DIAGRAM

4.4.1 PARTIAL CLASS DIAGRAM
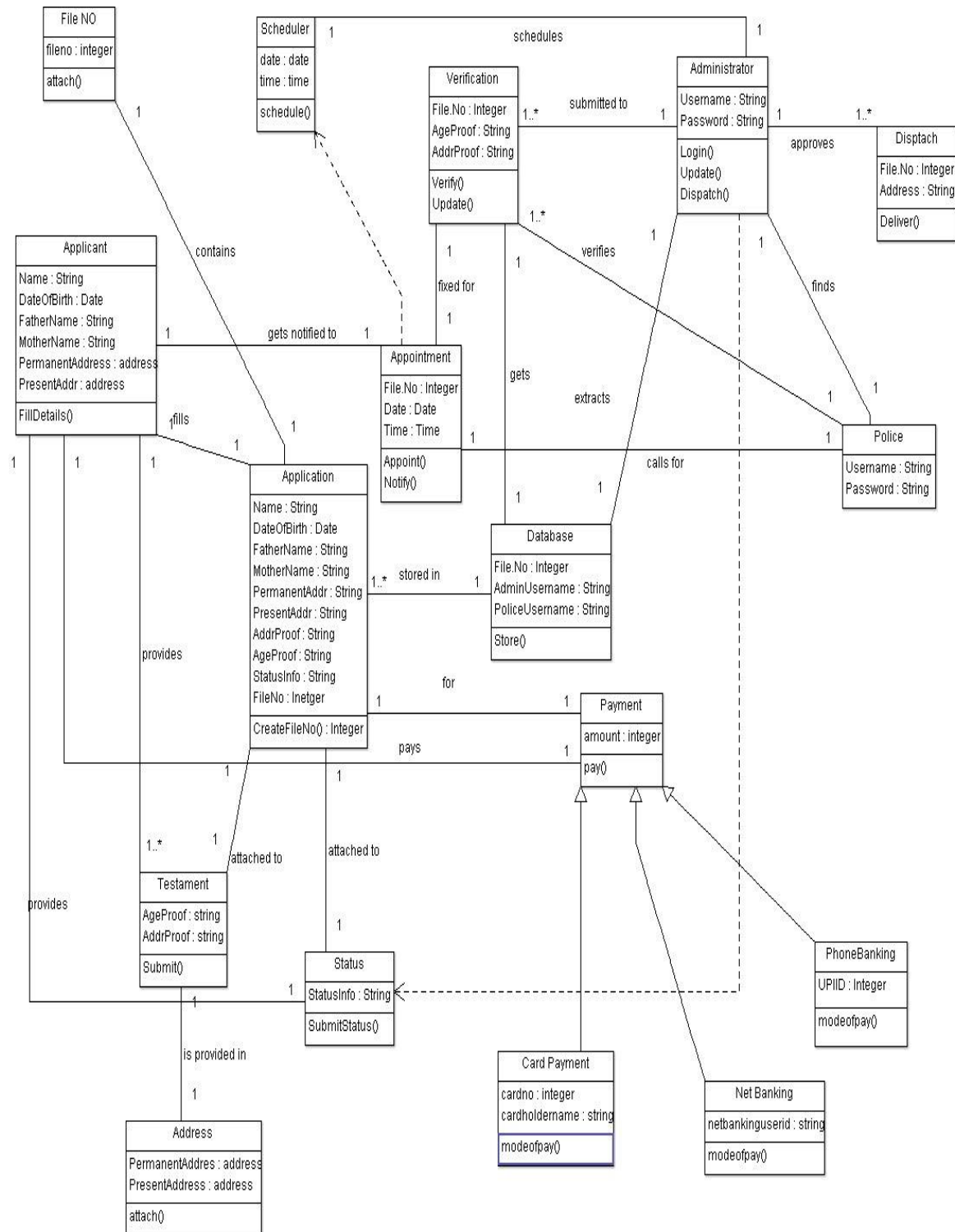
4.4.2 FINAL CLASS DIAGRAM

Chapter 5 : SEQUENCE DIAGRAMS

5.1 SCENARIOS

1. Registering for passport

1. Applicant enters the username.

2. Admin checks the user.

3. Status of Application is obtained from Applicant.

4. For a new Passport, details are entered, testaments are provided.

5. A FileNO is created for each Application.

6. Applicant pays for the Application.

7. For renewal, testaments are no required.

8. FileNo is created and the Applicant pays for the application.

2. Fixing appointment for verification

1. Administrator checks the Calendar to fix Appointment.

2. Scheduler shows the available dates to the Administrator.

3. Administrator fixes an Appointment and scheduler passes the Appointment info back.

4. Admin finds a Police to initiate Verification. If Police is occupied on that date, Admin fixes another appointment date and passes the Appointment Info to the Police.

5. Police informs the Applicant about the appointment.

3. Verification Appointment Notification

1. Appointment call for Police to notify Appointment details.

2. If the Police is not available on that date, appointment is fixed on another date and is notified to the Police.

3. The confirmed appointment date is notified to the Applicant.

4. Police initiates Verification and Applicant attends the Verification.

4. Verification

1. Application details are fetched from the Database for the corresponding FileNo.

2. Appointment date is verified.

3. Police proceeds the Verification and the Applicant attends the Verification.

4. If the Verification status is SUCCESS, the details are given to the Admin and the approval is notified to the Applicant.

5. If the Verification status is FAILURE, the details are given to the Administrator and the corresponding Applicant's details are removed from the Database.

5. Dispatch Passport

1. Admin gets the FileNo from database and the Database returns the FileNo.

2. Admin checks the verification status of the application.

3. If the status is Failure, admin rejects the approval.

4. If the status is Success, admin approves the passport and proceeds to dispatch.

5 Approved Passports are delivered to registered Address.

5.2 SEQUENCE DIAGRAMS

5.2.1 REGISTERING FOR PASSPORT
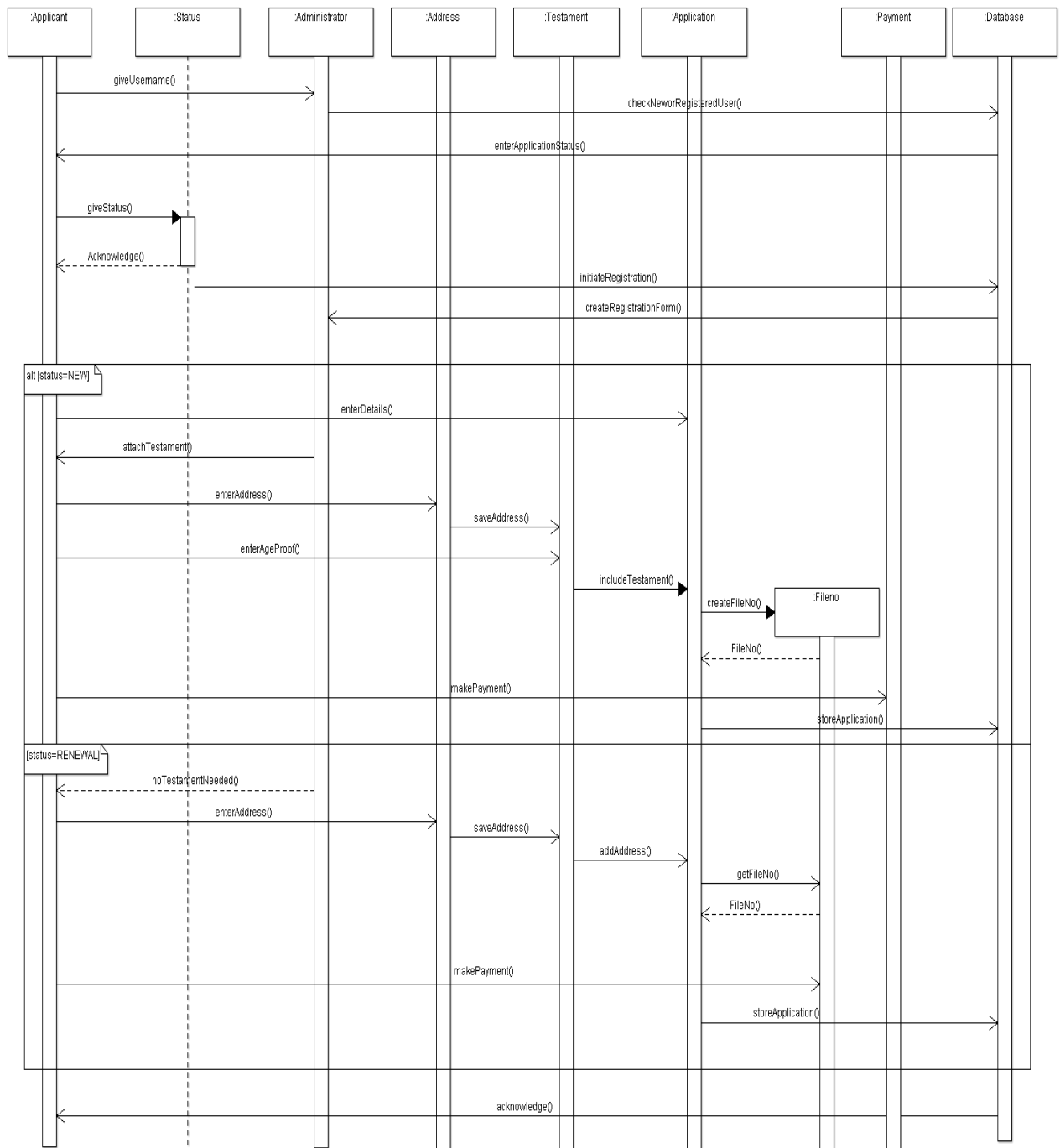
5.2.2 FIXING AN APPOINTMENT
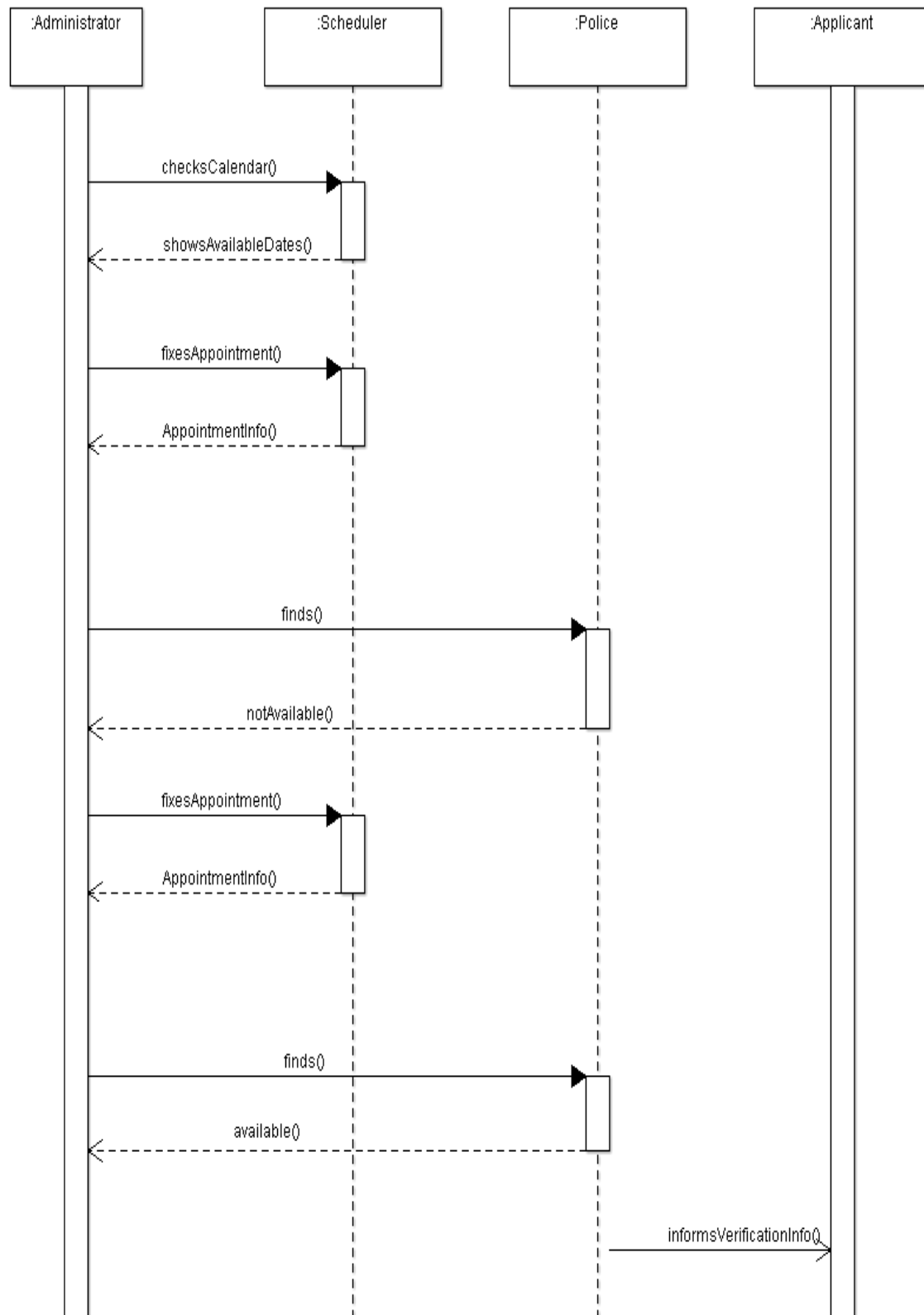
5.2.3 NOTIFY ABOUT APPOINTMENT

5.2.4 VERIFICATION OF TESTAMENTS

5.2.5 DISPATCH PASSPORT

Chapter 6 : STATE MODELLING

6.1 REGISTRATION

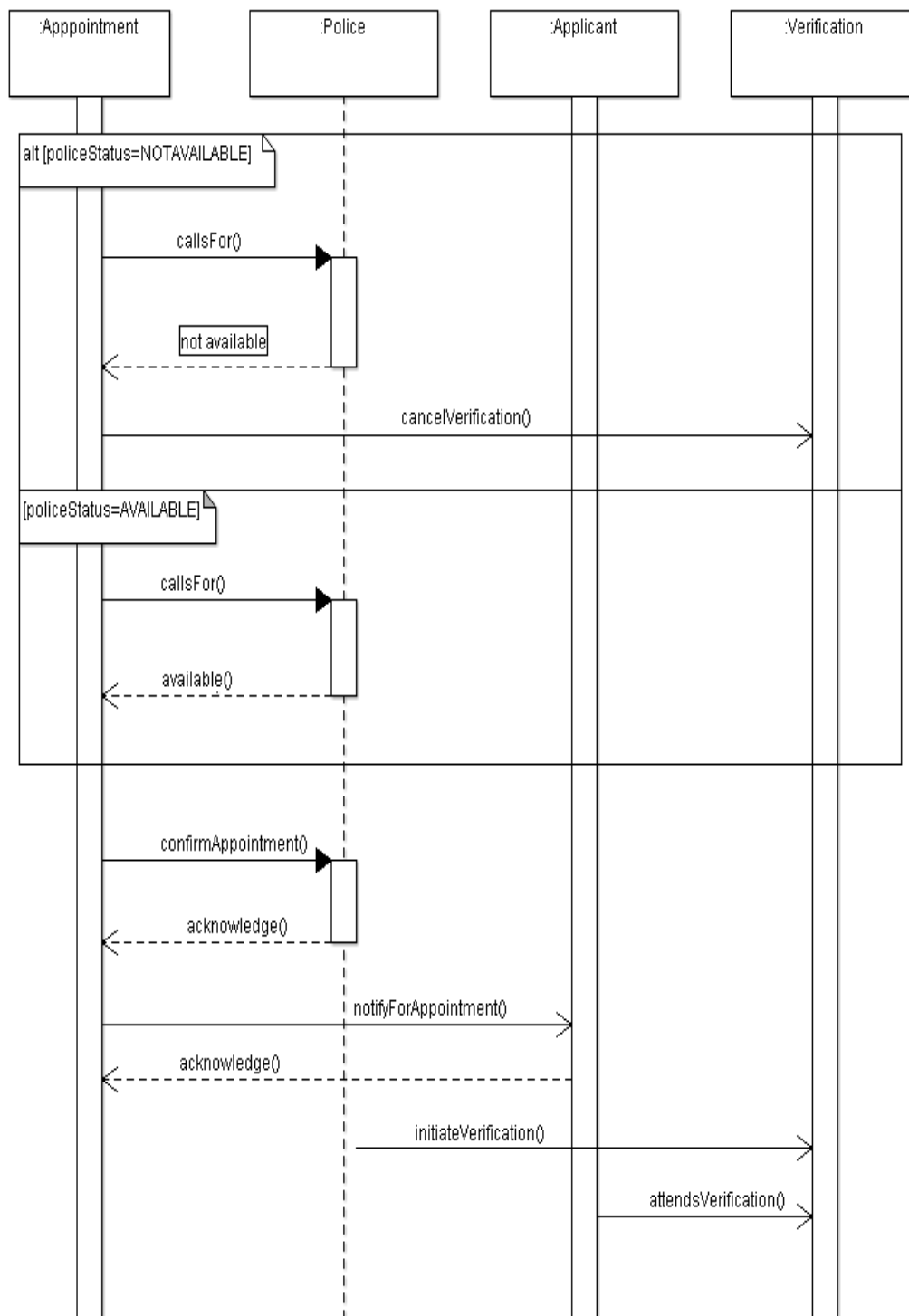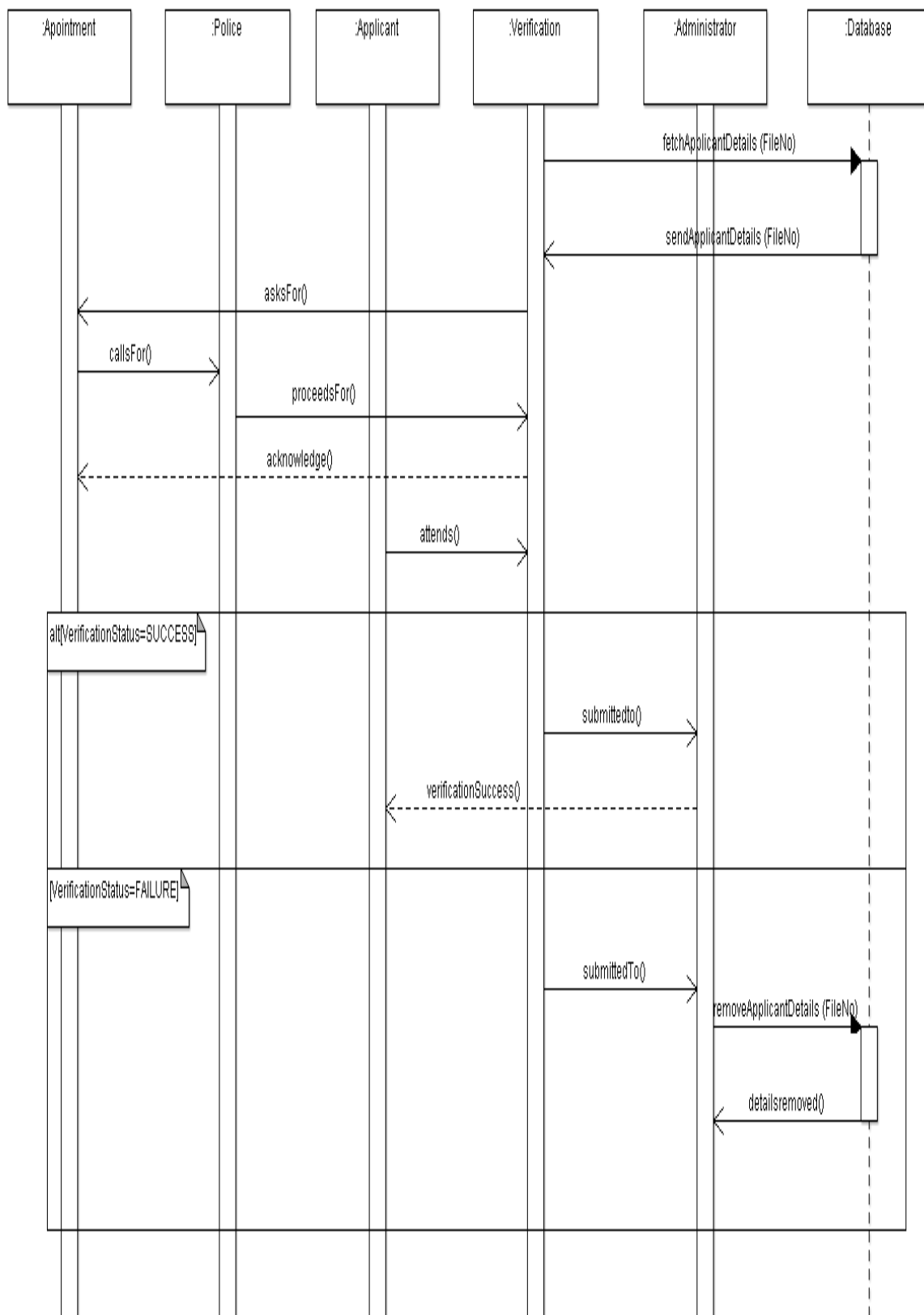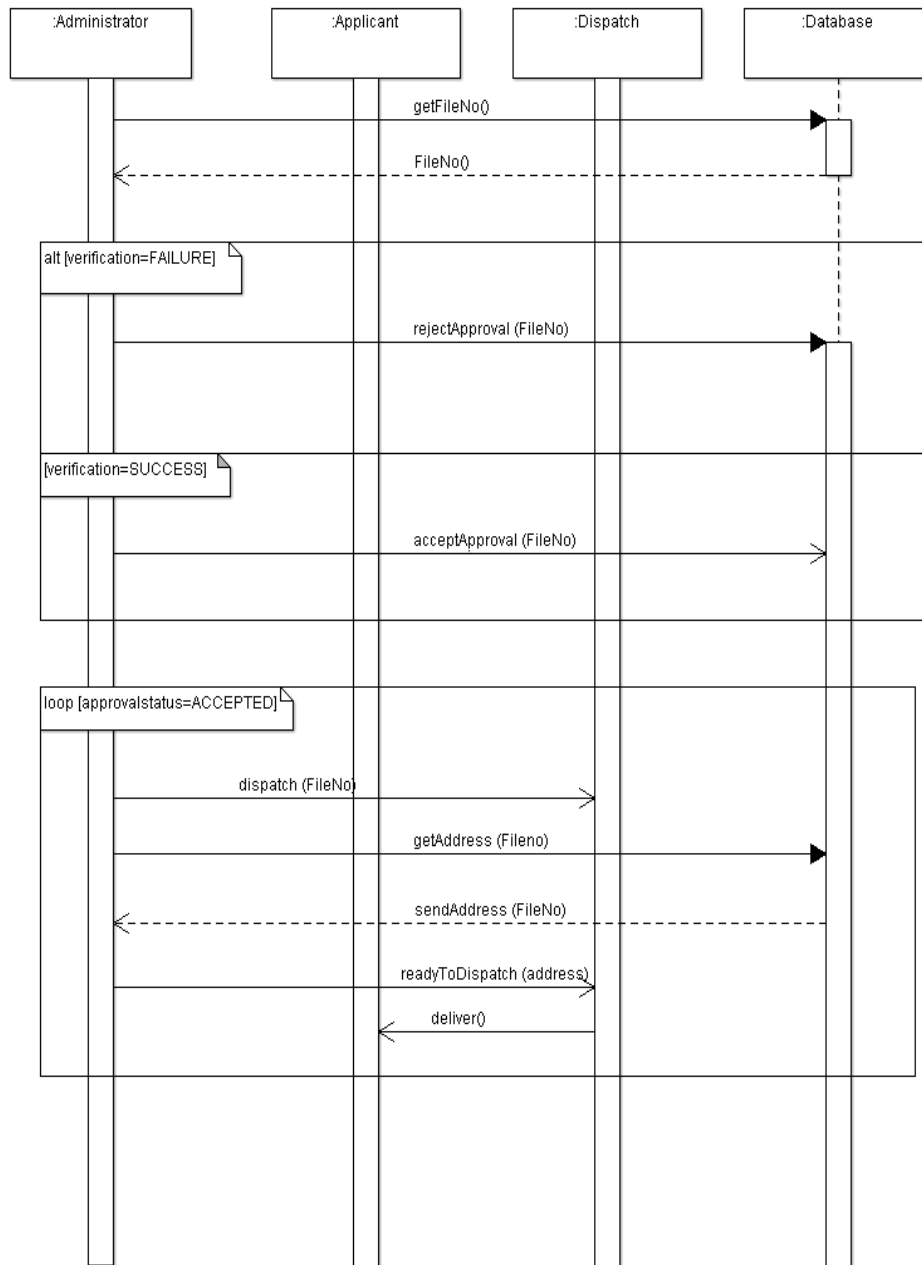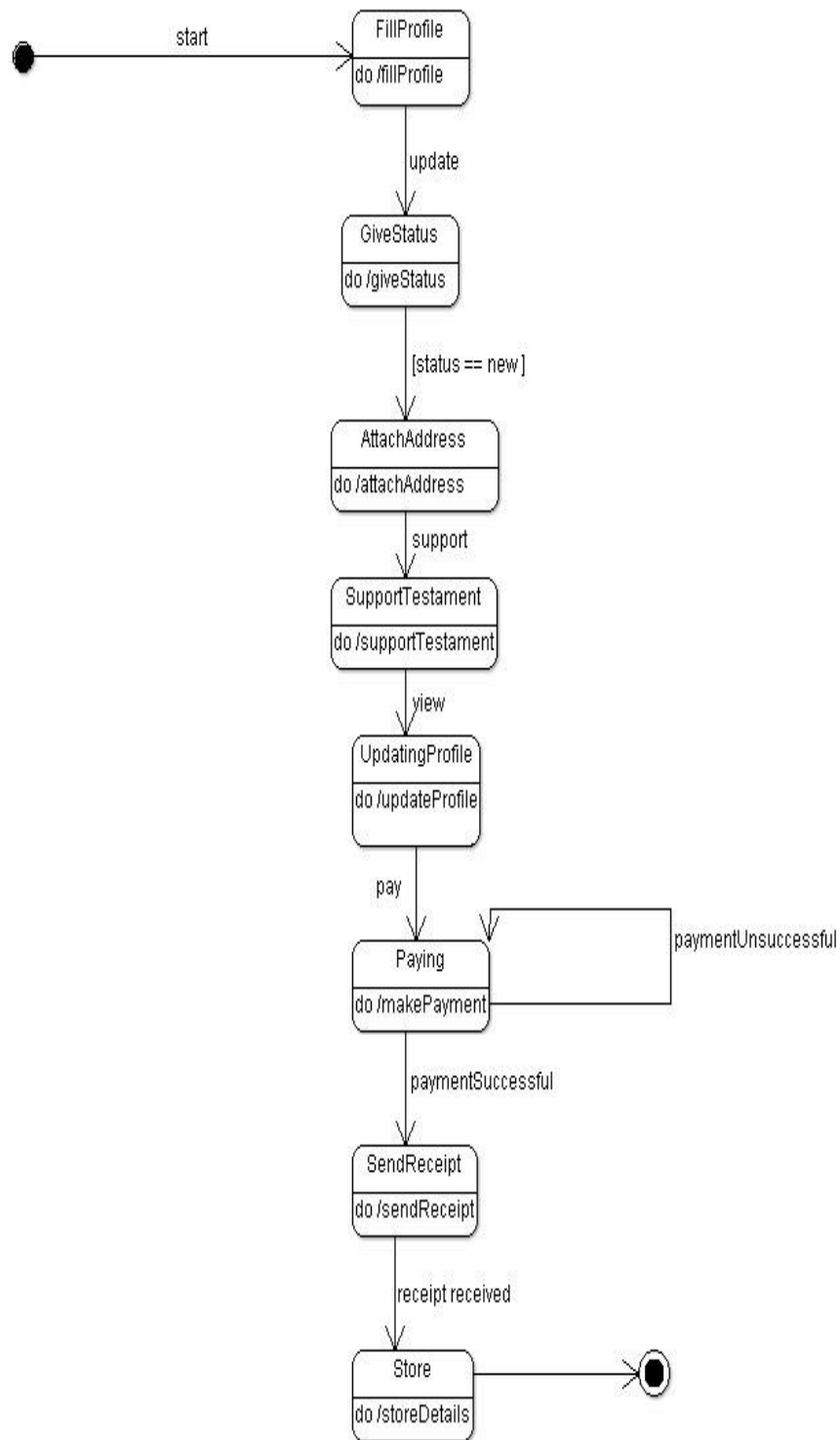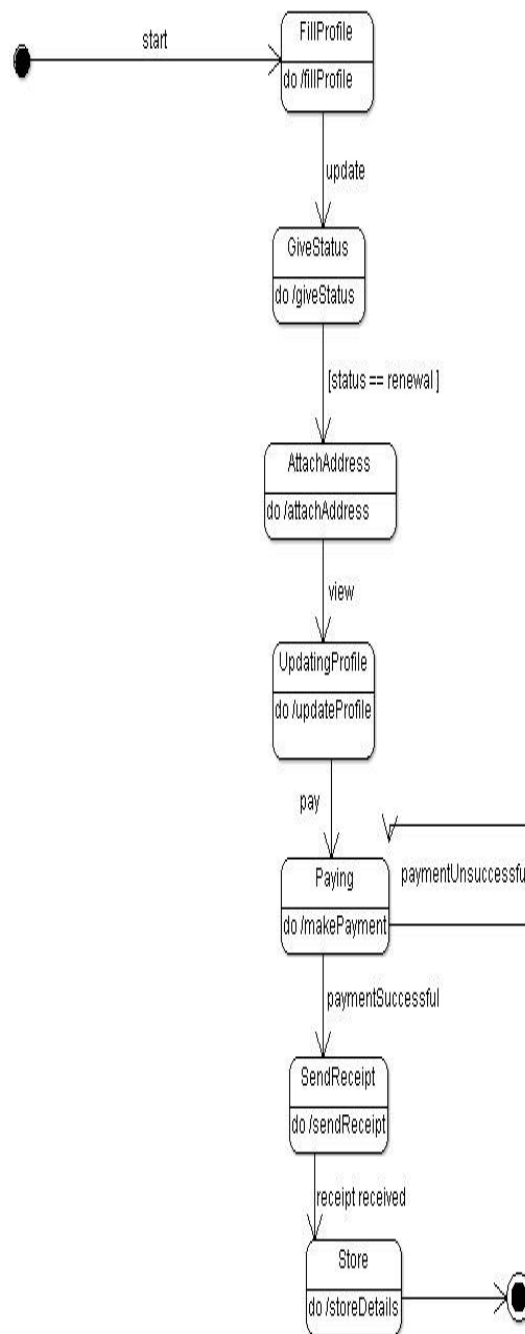IDENTIFIED OBJECT: Application

- Initially, the application is **in fill details** state because the details are to be filled by the applicant.
- After the details are filled, on update of the fill details, the application goes to **give status** state where the applicant has to specify the status of the Application (new/renewal).
- If the status given is new, the application goes to **process with Testament** state where the age proof, identity, address and testaments are attached with the Application.
- If the status given is renewal, the application goes to **process without Testament** state where the age proof and identity are attached with the Application.
- After attaching the required documents with the Application, on viewing the profile, the Application goes to **Update Profile** state where any required updations can be performed by the Applicant.
- In the Update Profile state, on selecting the pay option, the application goes to the **payment** state where the application fees is paid by the Applicant.
- On successful Payment, the application goes to **send receipt** state and the payment receipt is generated.
- On failed Payment, the application **remains in the same state** until the payment is successful.
- Once the receipt has generated successfully, the application goes to **store** state, where the application details are stored for further processing.

```
      start          ┌─────────────────┐
●────────────────────▶│   FillProfile   │
                      ├─────────────────┤
                      │ do /fillProfile │
                      └─────────────────┘
                              │ update
                              ▼
                      ┌─────────────────┐
                      │   GiveStatus    │
                      ├─────────────────┤
                      │ do /giveStatus  │
                      └─────────────────┘
                              │ [status == new ]
                              ▼
                      ┌─────────────────┐
                      │  AttachAddress  │
                      ├─────────────────┤
                      │ do /attachAddress │
                      └─────────────────┘
                              │ support
                              ▼
                      ┌───────────────────┐
                      │ SupportTestament  │
                      ├───────────────────┤
                      │ do /supportTestament │
                      └───────────────────┘
                              │ view
                              ▼
                      ┌─────────────────┐
                      │ UpdatingProfile │
                      ├─────────────────┤
                      │ do /updateProfile │
                      └─────────────────┘
                              │ pay
                              ▼
                      ┌─────────────────┐
                      │     Paying      │   paymentUnsuccessful
                      ├─────────────────┤
                      │ do /makePayment │
                      └─────────────────┘
                              │ paymentSuccessful
                              ▼
                      ┌─────────────────┐
                      │   SendReceipt   │
                      ├─────────────────┤
                      │ do /sendReceipt │
                      └─────────────────┘
                              │ receipt received
                              ▼
                      ┌─────────────────┐
                      │     Store       │─────────▶ ◉
                      ├─────────────────┤
                      │ do /storeDetails │
                      └─────────────────┘
```

NEW REGISTRATION

start

FillProfile
do /fillProfile

update

GiveStatus
do /giveStatus

[status == renewal]

AttachAddress
do /attachAddress

view

UpdatingProfile
do /updateProfile

pay

Paying
do /makePayment

paymentUnsuccessful

paymentSuccessful

SendReceipt
do /sendReceipt

receipt received

Store
do /storeDetails

RENEWAL

6.2 APPOINTMENT

IDENTIFIED OBJECT: Appointment.

- After the application details are stored, an appointment has to be fixed for verification of applicant details.
- The Appointment is in **fix appointment** state where an appointment is fixed using a scheduler.
- After getting the Appointment Info, on finding Police, the appointment goes to **Check Police Availability** state, where the availability of Police on the appointment date is checked for verification.
- If the Police is Not available on that date, the Appointment goes **back to Fix Appointment** state to change the appointment date.
- If the Police is Available on that date, on notifying the appointment info the appointment goes to **Notify state**, where the Appointment Info is notified to the Applicant.
- After notifying about the appointment, **verification process is initiated**.
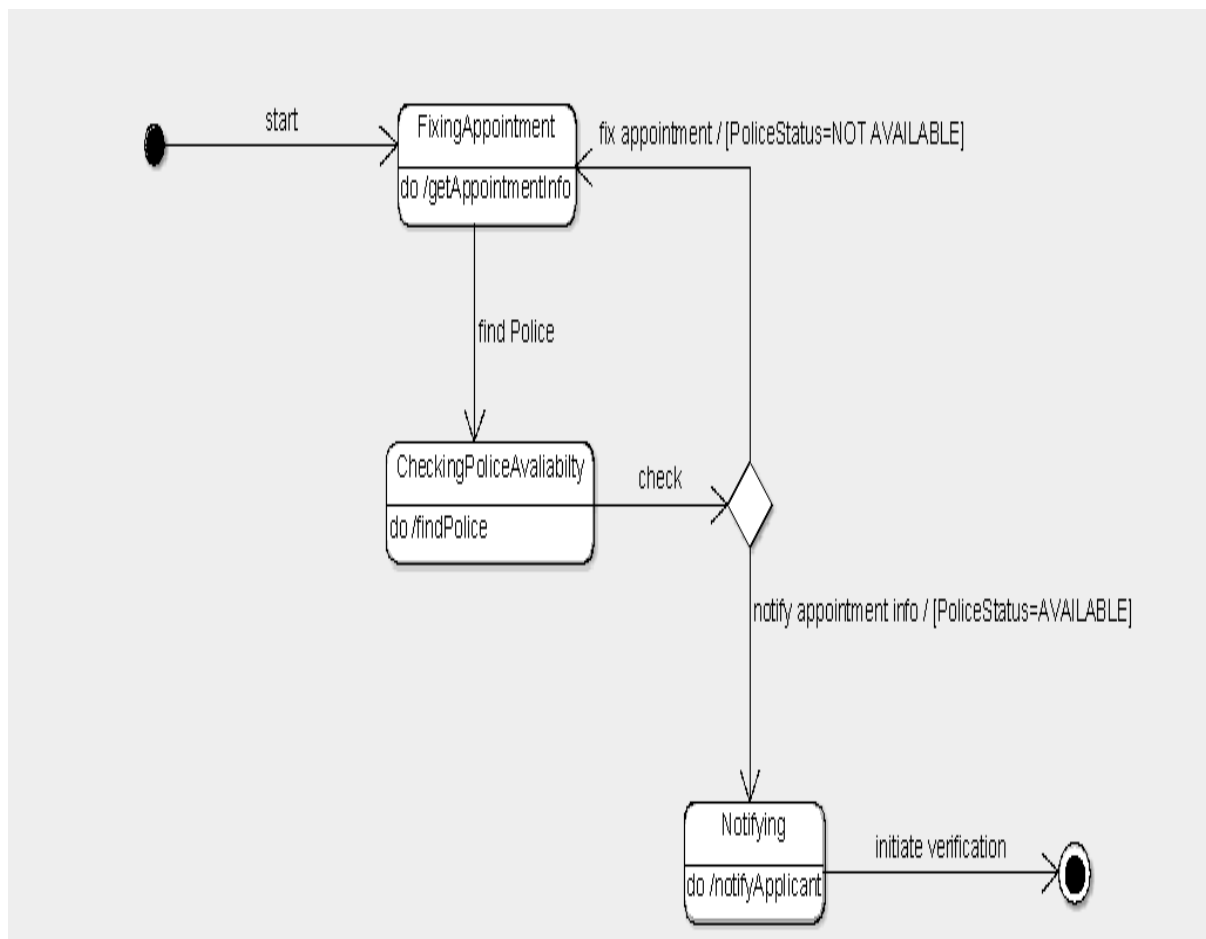
## 6.3 VERIFICATION

IDENTIFIED OBJECT: Application.

- Once the appointment has been fixed, the verification process is initiated and the application goes to **fetch applicant Details** state where the Application details are fetched for verification.
- After fetching the application details, the Application proceeds to **organize** state where a verification process is organized.
- When the organized time and the Appointment time are same, the call for event calls the Police and the Applicant for Verification.
- The application is verified by the Police as the Applicant provides all the testaments required.
- On checking the provided documents, the Application goes to **verify** state, where Address and identity of the Applicant is verified by the Police.
- Once the verification process comes to an end, the Application goes to **verification ended** state, where the verification is concluded.
- If the Application was not verified properly, the application **goes back to organize** state from where the verification starts again.
- On processing the Verification details, the Application goes to **submit details** state where the verification details are submitted and stored for further processing.
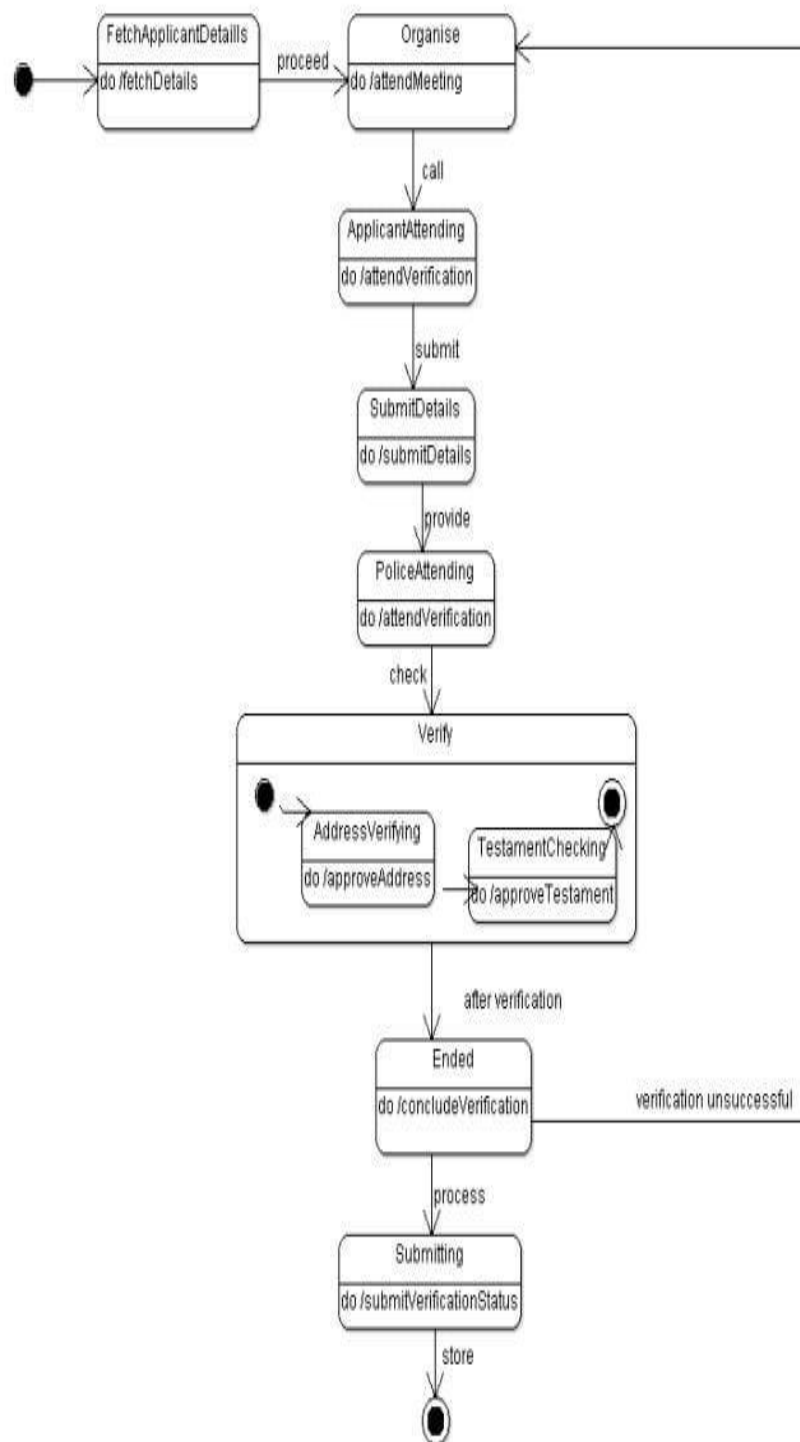
## 6.4 DISPATCH

IDENTIFIED OBJECT: Passport.

- Once the verification is completed, the status of the verification is stored.
- The Passport goes to **dispatch state**, when the approval status is ACCEPTED, where the delivery address for the Passport is fetched.
- After fetching the address, deliver event delivers the Passport and the Passport goes to **Delivered** state and the applicant has received the Passport.
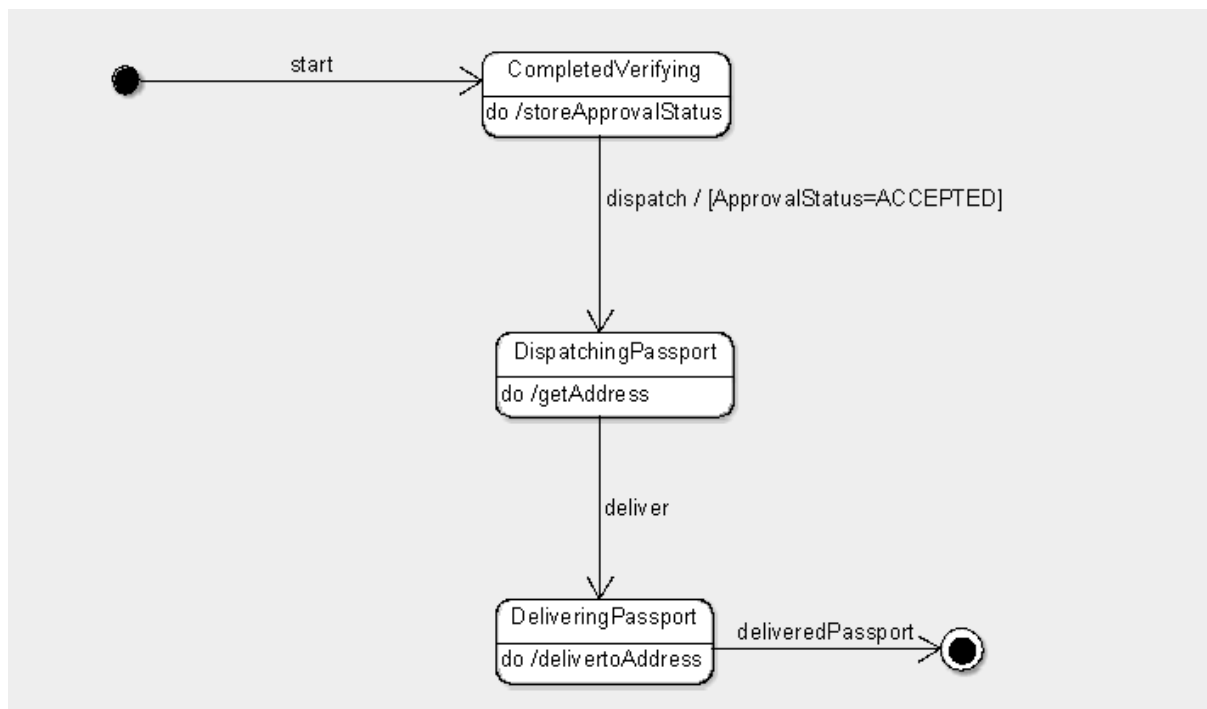
6.5 DISCARD APPLICATION

IDENTIFIED OBJECT: Application.

- The application goes to **Discard** state if the approval status is REJECTED, where the stored Application details are discarded or removed from the database.
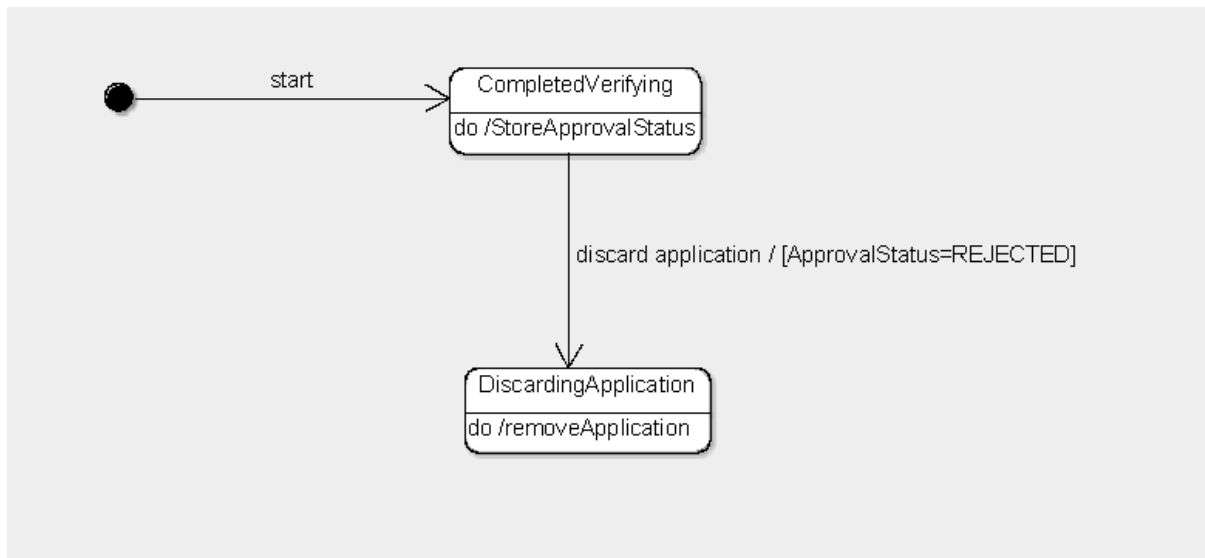
Chapter 7 : ACTIVITY MODELLING

7.1 REGISTRATION

IDENTIFIED OBJECT: Application

- Initially, the applicant performs the activity of filling in the details because the details are to be filled in the application form.
- After the details are filled, on update of the fill details, the application requires to fill the status where the applicant has to specify the status of the Application (new/renewal).
- If the status given is new, the application goes to process with Testament activity where the age proof, identity, address and testaments are submitted with the Application.
- If the status given is renewal, the application goes to process without Testament activity where the age proof and identity are submitted with the Application.
- After attaching the required documents with the Application, on viewing the profile, the applicant can perform an activity of Update Profile where any required updations can be performed.
- After the Update Profile activity, on selecting the pay option, the applicant is required to the pay.
- On successful Payment, the application requires to send payment receipt.
- On failed Payment, the application performs the preceded activity once again and then proceeds until payment is successful.

- Once the receipt has generated successfully, the application needs to be stored, where the application details are stored for further processing.
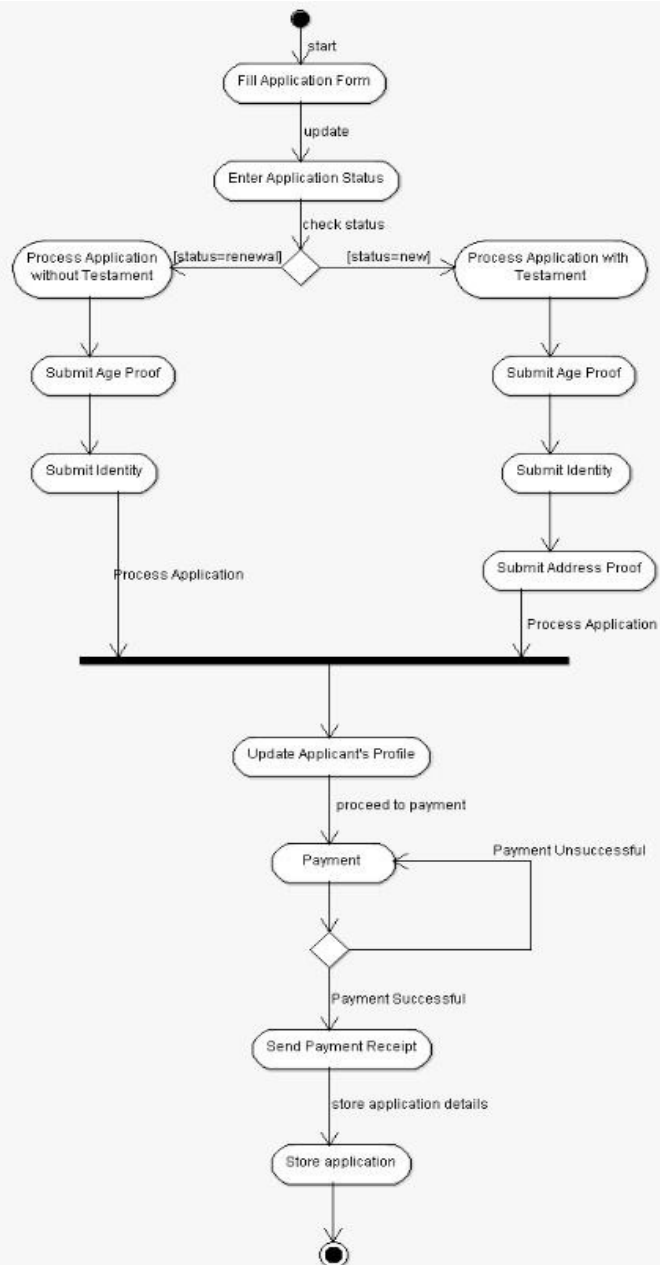
7.2 APPOINTMENT

IDENTIFIED OBJECT: Appointment.

- After the application details are stored, an appointment has to be fixed for verification of applicant details.
- Initially, the application stored has to be organized and then the activity of scheduling commences.
- Using the scheduler, the appointment date and time are fixing activity is performed.
- The Appointment is then finally fixed and then scheduled.
- After getting the Appointment Info, on finding Police, the appointment checks for Police Availability, where the availability of Police on the appointment date is checked for verification.
- If the Police is Not available on that date, the application is once again organised and then the activity of fixing date and time is reorganized.
- If the Police is Available on that date, on notifying the appointment info the appointment gets Notified to the applicant.
- After notifying about the appointment, verification process is initiated.
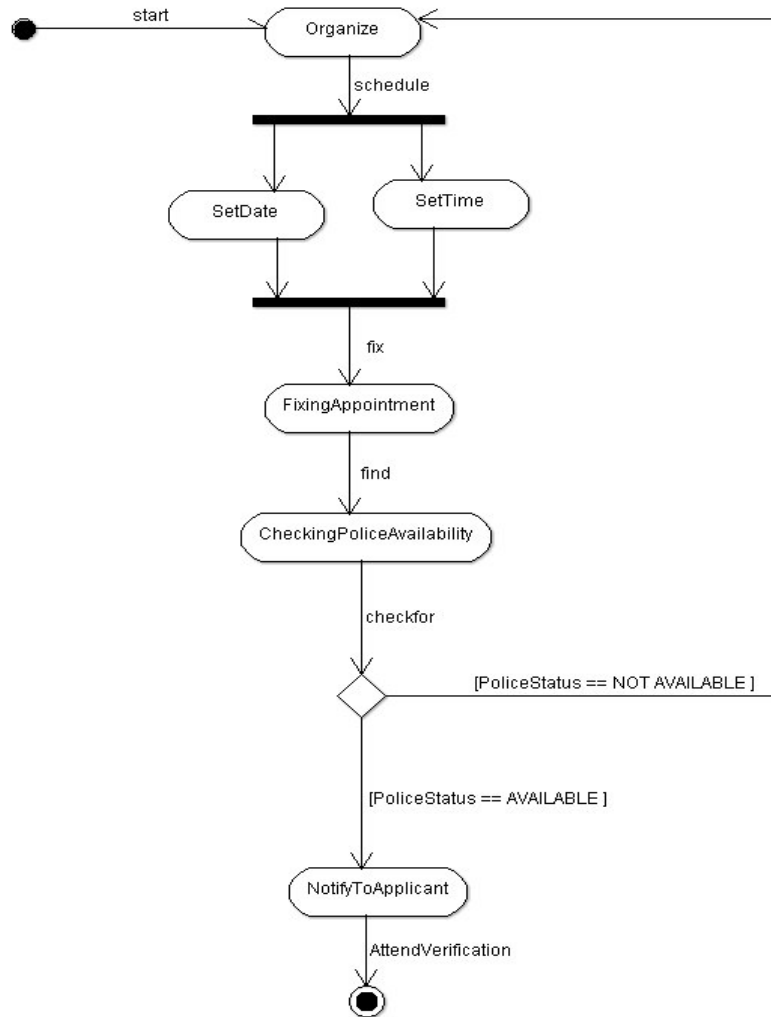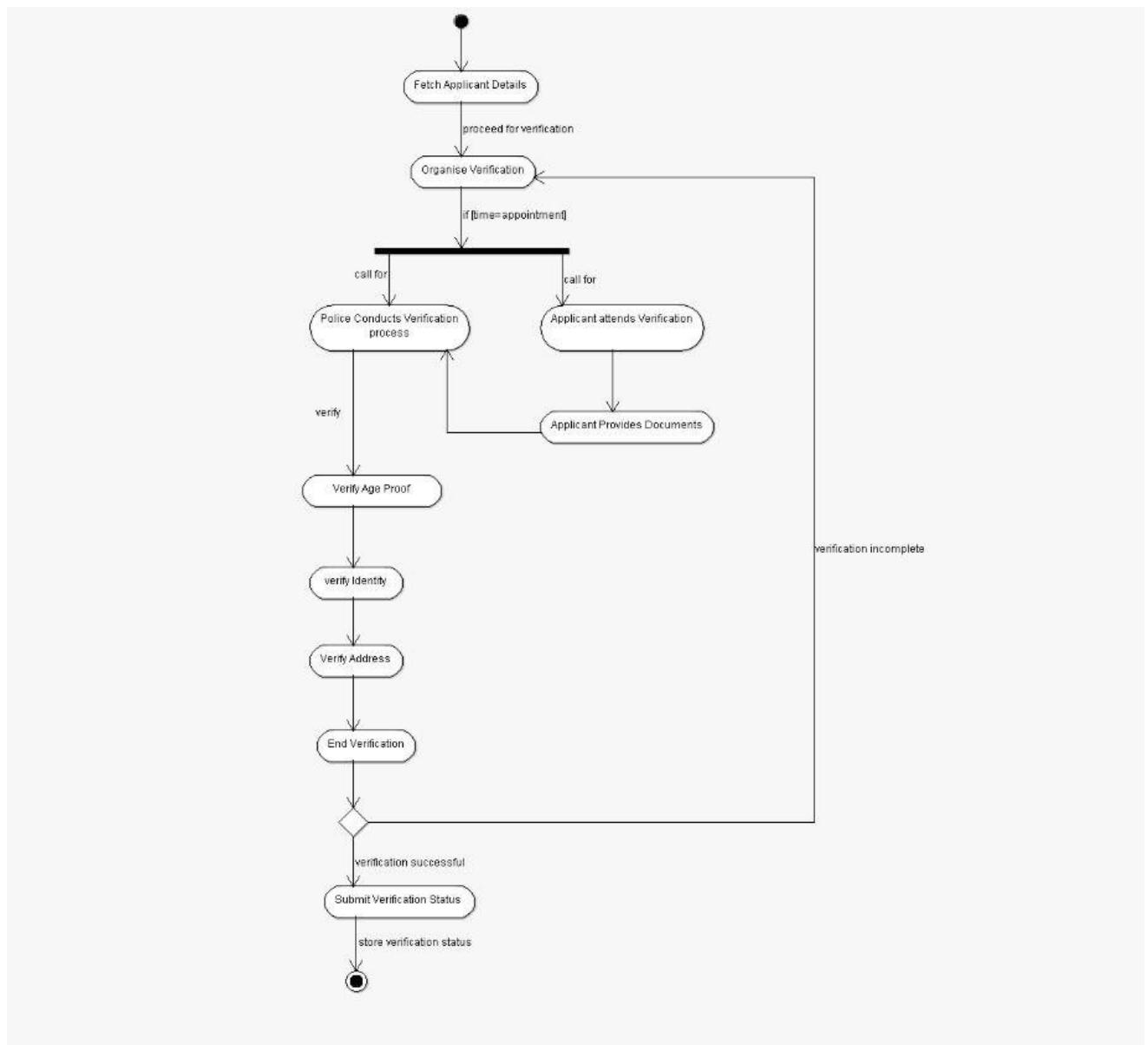
7.3 VERIFICATION

IDENTIFIED OBJECT: Application.

- Once the appointment has been fixed, the verification process is initiated and the application fetches Applicant Details where the Application details are fetched for verification.
- After fetching the application details, the Application proceeds where a verification process is organized.
- When the organized time and the Appointment time are same, the call for event calls the Police and the Applicant for Verification.
- The Applicant provides all the testaments required.
- The Police conducts verification by overviewing the documents submitted by the applicant.
- On checking the provided documents, the Application is verified, where age proof, Address and identity of the Applicant is verified by the Police.

- Then the verification process comes to an end. The Application goes to end verification, where the verification is concluded.
- If the verification was unsuccessful, the application goes back to organize verification activity from where the verification starts again.
- If the verification was successful, process the Verification details, the verification status gets submitted where the verification details are stored for further processing.

7.4 DISPATCH

IDENTIFIED OBJECT: Passport

- The verification process is completed.
- And then verification report is submitted and stored.
- The verification report is checked.
- The application gets discarded if the approval status is REJECTED, where the stored Application details are discarded or removed from the database.
- The Passport gets dispatched, when the approval status is ACCEPTED, where the delivery address for the Passport is fetched.
- And then delivering passport activity is performed.
- Then the condition is checked whether the passport has reached the applicant or not.
- If the passport reached status is YES, the passport reaches the applicant and then the whole activity is ended.
- If the passport reached status is NO, check Address activity is once again done and then it is dispatch activity is proceeded.
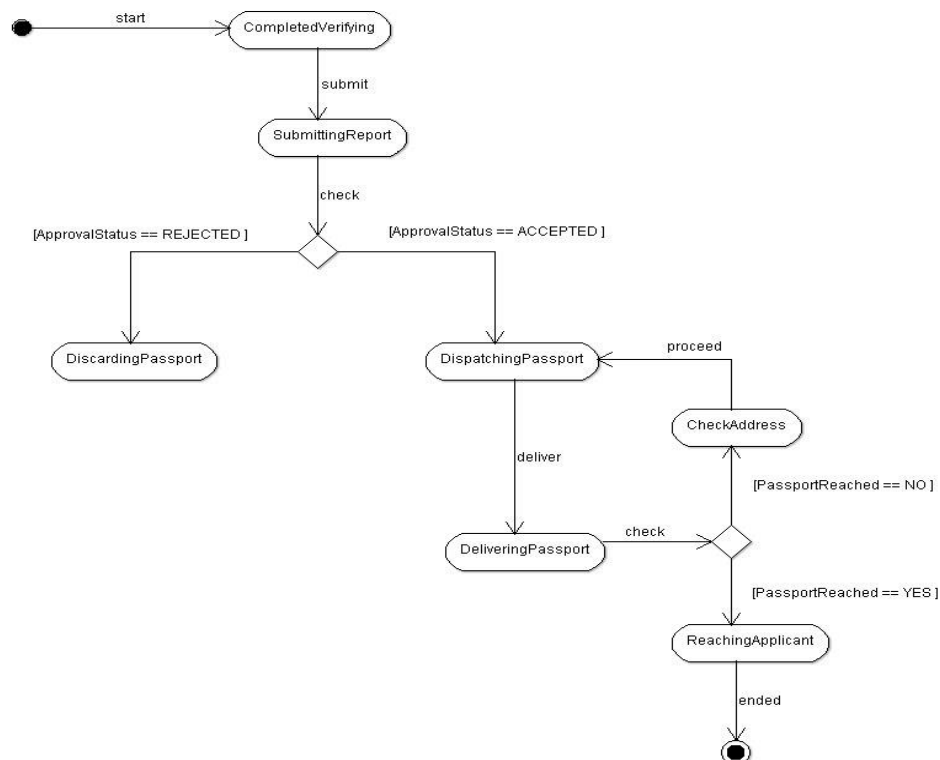
Chapter 8 : CONCLUSION

8.1 IMPLEMENTATION EXAMPLE

CODE FOR CLASSES:

1) ADMINISTRATOR CLASS:

```java
import java.util.Vector;
public class Administrator {
 public string Username;
 public string Password;
  /**
  *
  * @element-type Dispatch
  */
 public Vector  approves;
    public Scheduler schedules;
  public Police finds;
  public Database extracts;
 public void GetFileNo() {
 }
 public void RejectApproval( FileNo) {
 }
 public void AcceptApproval( FileNo) {
 }
 public void GetAddress( FileNo) {
 }
 public void ReadytoDispatch( Address) {
 }
 public void Dispatch( FileNo) {
 }
 public void ChecksCalendar() {
 }
```

```java
        public void FixesAppointment() {

        }
        public void Finds() {

        }
        public void AsksToAttachTestaments() {

        }
        public void NoTestamentsNeeded() {

        }
    }
```

2) **VERIFICATION CLASS**

```java
import java.util.Vector;
public class Verification {
  public Integer FileNo;
  public string AgeProof;
  public string AddrProof;
    /**
     *
     * @element-type Database
     */
  public Vector  gets;
   public Police myPolice;
   public Vector  1;
  public void AsksFor() {
  }
  public void SubmittedTo() {
  }
}
```

3) **APPLICANT CLASS:**

```java
import java.util.Vector;
public class Applicant {
  public String Name;
```

```java
    private Date DateOfBirth;

    public String FatherName;

    public String MotherName;

    public Address PermanentAddr;

    public Address PresentAddr;

        public Application fills;

    /**
     *
     * @element-type Testament
     */
    public Vector  provides;

     public Status enters;

    public void Acknowledge() {

}

    public void AttendsVerification() {

    }

    public void GiveStatus() {

    }

    public void EnterAddress() {

    }

    public void EnterAgeProof() {

    }

    public void EnterDetails() {

    }

}
```

8.2 CONCLUSION

The mini case study has been successfully generated. If the entire process of 'Issue of Passport' is done in manual manner, then it would take several months for the passport to reach the applicant. Considering the fact that the number of applicants for passport is increasing every year, an Automated system becomes essential to cater the needs. So this system uses several programming and database techniques to elucidate the work involved in the process. As this is a matter of National Security, the system has been carefully verified and validated in order to satisfy it. Our system provides an online interface to the users to retrieve new or renewed passport. Thus the online interface describes the capability of the Passport Automation System to perform all the processes by maintaining the details effectively.

8.3 REFERENCES

[1] Software Requirements Specification for Passport Automatic Procession, Soundharya Shekhar, 2014

[2] Passport Automation System using online interface, Vidhyarthiplus

[3] Passport Automation System, Slideshare.net