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1. Introduction

1.1 Purpose

The main purpose of System Requirement Specification (SRS) documentation
is to describe the detailed description of the UTM Alumni Integration System(UTM ALIS)
based on functional and nonfunctional requirement relating to upgrading the UTM ALIS system. It will clarify the aim and features of the system, how the system will react
to its input and the interfaces of the system. This document is created for UTM Alumni Staff as one of the stakeholders and the developers of the system as audience.

1.2 Scope

The software product is UTM Alumni Integration System (UTM ALIS) having several problems on the generating reports, connecting with alumni, find company, connecting with industrial and make donation. Selected processes on these problems will be upgrading to be more user-friendly and more useful.

Furthermore, the system will be design and develop in embedded software, web-based software, and application and running it on mobile device such as tablet computer or smartphone. User able to fill-in forms, make donation, find job, find company and view statistical report easily. The system will allow user to make chatting with alumni, find industry related with the research, view alumni social media. The system database is connected to UTM Space Student Database, UTM Franchise Database, UTM Foundation Student Database and Alumni Database.

1.3 Definitions, Acronyms and Abbreviation

yms	tions
ALIS	Alumni Integrated system
S	ase Management System

1.4 References

1. Sommerville, Ian (2010). Software Engineering, 9th Edition. Addison Wesley.

2. Pohl, Klaus & Rupp, Chris (2011). Requirements Engineering Fundamentals. Rocky Nook.

1.5 Overview

The remaining sections of this document is an overall description for UTM Alumni Integration System (UTM ALIS) which will provide the product perspective, the system functionality, characteristics of the users of this project, the system constraints, the system assumption and dependencies and also the requirements of the system. The next section in this document is specific requirements that will discuss detailed interface requirements, the system features, performance requirements, design constraints, software system attributes and other related requirements of the system.

2. Overall Description
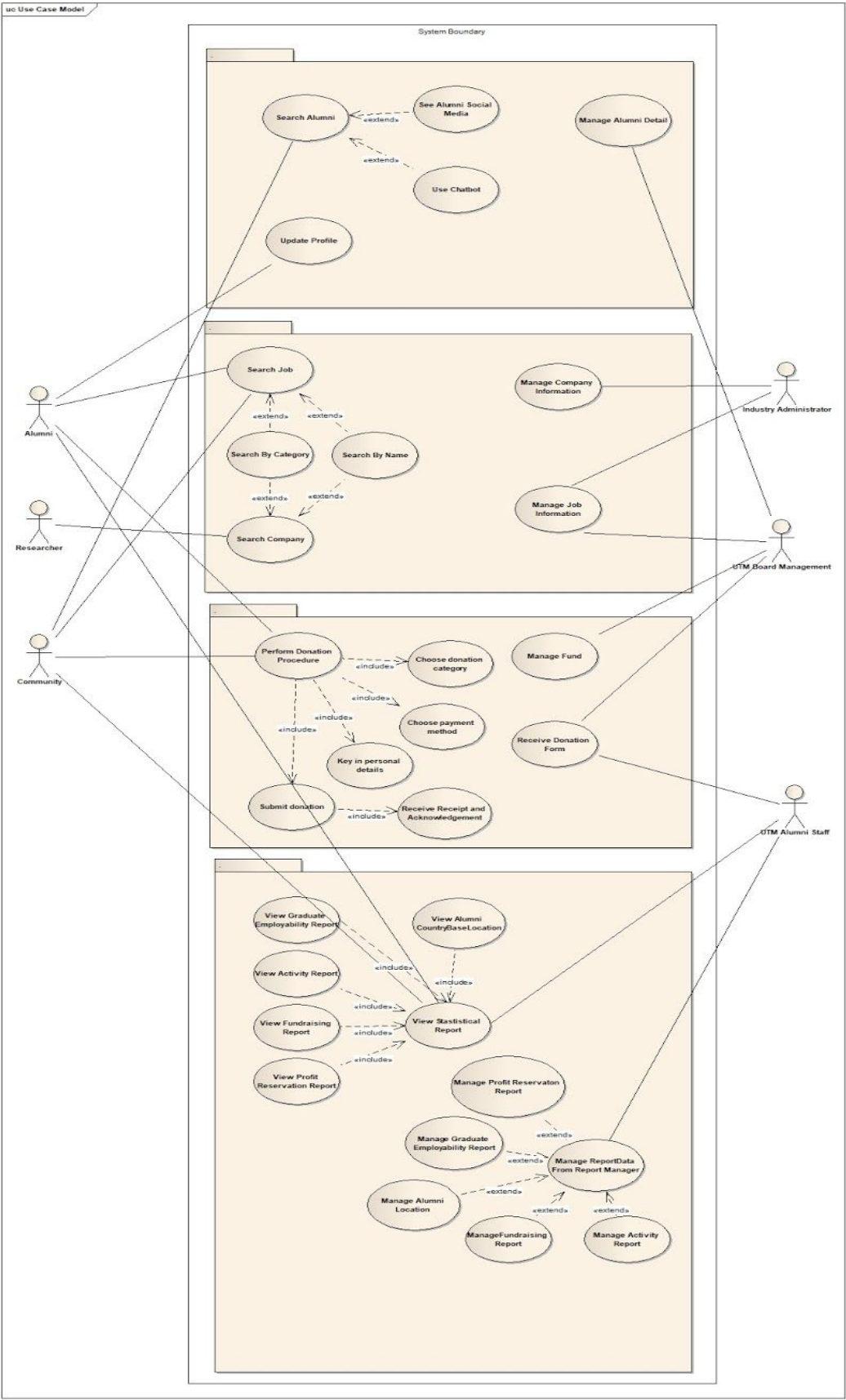
Figure 2.1: Use Case Diagram UTM ALIS

2.1 Product Perspective

A newly upgraded UTM-ALIS system is needed to ensure the system to work efficiently and provide a more secure database before collecting information from alumni. The context diagram of our proposed system is as below: -

2.1.1 System Interfaces

Alumni membership

2.2 Manage profile

2.2.1 The system shall allow alumni to fill and update the profile

2.2.2 The system shall allow any user to view alumni profile

2.3 New Application

2.3.1 The system shall provide new application for associated alumni

2.4 Special group interest

2.4.1 The system shall provide group by state and country

2.4.2 The system shall provide group by batch

2.5 News distribution

2.5.1 The system shall allow alumni and communities to view UTM news

2.5.2 The system shall allow alumni and communities to view job news

2.6 Make donation

2.6.1 The system shall allow to view donation

2.6.2 The system shall allow alumni and communities to make online payment for donation

Activity Management

2.1 New registration activity

2.1.1 The system shall allow Alumni Staff to send message to alumni for registration

2.2 Manage alumni data

2.2.1 The system shall be able to record all alumni information gathering

2.2.1 The system shall be able to generate a complete UTM and association alumni data

2.2.2 The system shall be able to update alumni data

2.3 Attendance management

2.3.1 The system shall record and generate staff attendance

2.4 News distribution

2.4.1 The system shall allow activity management to distribute UTM news

2.4.2 The system shall able to link with all UTM department to collect and distribute news

2.4.3 The system shall allow activity management to distribute job new

2.5 Searching alumni activity

2.5.1 The system shall collect and generate alumni activity

2.5.2 The system shall allow staff to search for alumni activity

2.6 Connection between faculty / school / department

2.6.1 The system shall able to connect with faculty / school / department

2.6.2 The system shall able to gather alumni details from faculty / school / department

Industrial Network Linkage

2.1 New registration application

2.1.2 The system shall allow industrial to register

2.1.3 The system shall record the industrial information

2.2 Build network

2.2.1 The system shall be able to build network with company

2.2.2 The system shall allow the company to view alumni profile

2.2.3 The system shall allow company to generate offer letter to alumni

2.2.4 The system shall provide communication medium between alumni and company

2.2.5 The system shall allow the company to distribute job news

Institutional Researcher

2.1 Research survey

2.1.1 The system shall allow researchers to upload surveys for their research

2.2 Build network

2.2.2 The system shall provide communication between researchers and alumni

Report & Statistic

2.1 View Statistical report

2.1.1 The system shall able to generate graduate employability report in Bar Chart

2.1.2 The system shall able to generate fundraising report in Histogram

2.1.3 The system shall able to generate activity report in Pie Chart

2.1.4 The system shall able to generate profit reservation facility report in Pie Chart

2.1.5 The system shall able to generate Alumni CountryBase Location in Bar Chart

2.1.6 The system shall allow alumni and staff to view Statistical page

2.2 Manage Statistical report

2.2.1 The system shall able to manage graduate employability report

2.2.2 The system shall able to manage fundraising report in Histogram

2.2.3 The system shall able to manage activity report in Pie Chart

2.2.4 The system shall able to manage profit reservation facility report in Pie Chart

2.2.5 The system shall able to manage Alumni CountryBase Location in Bar Chart

2.2.6 The system shall allow only UTM Board Management and staff to manage and save all Statistical Report

2.1.2 User Interfaces

Find Alumni system will require users to choose either to search alumni by name, course, gender, expertise and graduation year, then enter the related alumni details. The system also allowed the user by search multiple categories. Then user will be view with the result of multiple list of alumni profiles. User need to choose the alumni profile. After the user click the button view alumni profile, the user will view alumni profile with the details. The user also can chat with the alumni by click on the chat button. Else, alumni also can view alumni's social media by click on the social media button. This will go to social media external site.

Find company system will require users to choose between 'Job' or 'Research'. If users choose 'Job', they will be linked into another interface that they can use search box and dropdown job category that will resulting to a complete related job lists and finally select preferred job. Else if users choose 'Research', they will be linked into another interface that they can use search box and dropdown research field that will resulting to a complete related company lists and finally select preferred company. After selecting, users will be directed to another interface which provide users with the company's phone number and email also a button to copy them.

Make donation system will require users to choose type of user which is either 'Community' or 'UTM Alumni'. Both choices will be linked into another interface where they can use dropdown list of donation category. There is also a radio button where user will choose the payment method of his/her choice. Then, the user needs to insert the amount of donation and proceed to the next step which is login detail or credentials. The user need to login with his/her userID, password and tick if it is the right secure word which have been determined during registration of account. The user will then be prompt to request TAC No. in order to submit transaction. Once submitted, it will generate receipt and indicate a successful transaction.

Statistical system will show the register users statics & report page. The page will display Graduate Employability Report in Bar Chart, Activity Report in Pie Chart,

Fundraising Report in Histogram, Profit Reservation Report in Pie Chart   and Alumni Location in map.

2.1.3 Hardware Interfaces

UTM ALIS basically will run on mobile devices that have camera, Wi-Fi, Bluetooth, GPS, and network communications. The system also will connect with portable printer via Bluetooth or Wi-Fi.

2.1.4 Software Interfaces

• Name: MySQL database management system

• Mnemonic: MySQL

• Version number:-

- MySQL eases developers to establish and manage database in the form of table which is formatted; it has an open source user interface.

• Name: MapServer 7.0.4

• Mnemonic: MapServer

• Version number: 7.0.4

- MapServer belongs to Google; we use it to request the images of maps based on zoom level and coordinates (x,y). It has the ability to use Google Maps API. Google Maps API will sends MapServer a new set of tiles every time we zoom in the map.

• Name: Bootstrap 2.3.2

• Mnemonic: Bootstrap

- Version number: 2.3.2
  - Bootstrap is free and open-source software that we will use for fast and easy web development with HTML- and CSS-based design. We also use it to create an intuitive user interface.

- Name: WeBuilder
- Mnemonic: WeBuilder
- Version number: -
  - We use WeBuilder to ease web developer in code editing. This software allows developers to create and manage code written in many languages such as PHP, JavaScript, HTML, etc.

- Name: FTP Client Software
- Mnemonic: SmartFTP
- Version number: 9.0
  - This software allows files transfer between local computer and server on the Internet.

- Name: Enterprise Architecture
- Mnemonic: Enterprise Architecture
- Version number: 8.0
  - This software helps in constructing Use Cases, Sequence Diagrams, Activity Diagrams and User Interface.

2.1.5 Communication Interfaces

UTM ALIS basically will run on mobile devices that have camera, Wi-Fi, Bluetooth,

GPS, and network communications. The system also will connect with portable printer via Bluetooth or Wi-Fi.

2.1.6 Memory

For our primary storage, we have determined that our focus group targets the system to have between 256-512MB of RAM, therefore the design footprint should not exceed 256MB. For ROM, we need to comply to the limit where a ROM chip stores several MB (megabytes) of data, typically 4 MB or 8 MB per chip. In terms of secondary storage, we will need need to use desktop computers and ensure the capacity of our system can be lower than 500 gigabytes (GB), while notebook computer hard drives offer sizes of up to 160 GB.

2.1.7 Operations

This system is not resource- or graphics-intensive, so there are no practical hardware constraints. The database will be stored on the server , interfaced with a wrapper written in PHP5. The period of unattended operations for the system is outside of working hours. Data processing in the system has several support functions including validation and reporting. Validation process ensuring that supplied data is correct and relevant while reporting process includes list detail or summary data. In data processing mode, the interactive system processes and validates each data entry made by the user.

2.1.8 Site Adaptation Requirements

The software does not require any modifications for site adaptation. The system works on basic computer that is connected to the organization's local area network.

2.2 Product Functions

In UTMALIS,the user shall require to login to get full facility of UTMALIS.The User shall require to be member to get authentication of UTM Alumni.The User shall be able to search Alumni. The user can see Alumni Profile Details .The user can update their profile.The UTMALIS will give user job and research News and details and option for apply.The user can make donation with various payment method.The Alumni can see the Statistical Report about Graduate Employability,Alumni country base location,Fundraising,Activity and Profit Reservation in Charts.

2.3 User Characteristics

The users which consists of alumni from UTM are mostly experienced in the engineering field. Therefore, these users have comfort with technology that will drive a good UI design. For the sake of other users such as the community, we will need to provide a user-friendly interface which is suitable with youth and also the older generation. For other important stakeholders which are UTM Alumni Staff and the UTM Board of Management, the product should have common external softwares which can be reused from the initial system since they are experts in the particular softwares such as using MySQL or Oracle database.

2.4 Constraints

a) Only alumni, alumni staff and UTM Board management is authorized user in UTM ALIS.
b) Only two languages are going to be use, which are Malay and English.
c) The login information shall be verified within five seconds.
d) UTM ALIS limits the login attempt for three times only.
e) UTM ALIS will be builds with Graphical User Interface (GUI).
f) The load time for user interface screen shall take no longer than two seconds.
g) UTM ALIS requires internet connection for working properly. Since UTM ALIS fetches
data from the database over the internet and store collected directly, it is
crucial that there is Internet connection for the application to function.

h) It should permit one hour per day for maintenance and backup activities

minimal disruption to users.

    i)   Any failure should cause no more than ten minutes' downtime, with the average not exceeding two minutes.

    j)   System should allow administrator to enrol new user and give them access right to read data
    k) Safety and security considerations.

2.5 Assumption and Dependencies

Assumption:

1. During electric shortage, generator will be ready.
2. All stakeholders will come for the first meeting.
3. During the testing, there will be a QC Engineer.
4. Delivery of the programmers tools will arrive a week before the project starts.
5. Schedule for throughout project has been reviewed and approved by every staffs for their availability.

Dependencies:

1. Every testing can only be done after finishing the designing processes of the system.
2. Testing is also depending on the progress of each part of the system covering from the web design, back-end design and system design.

2.6 Apportioning of Requirements

Version 1 of the system is available only in Malay and English. In the case that the project is delayed, there are some requirements that could be transferred to the next version of the application.
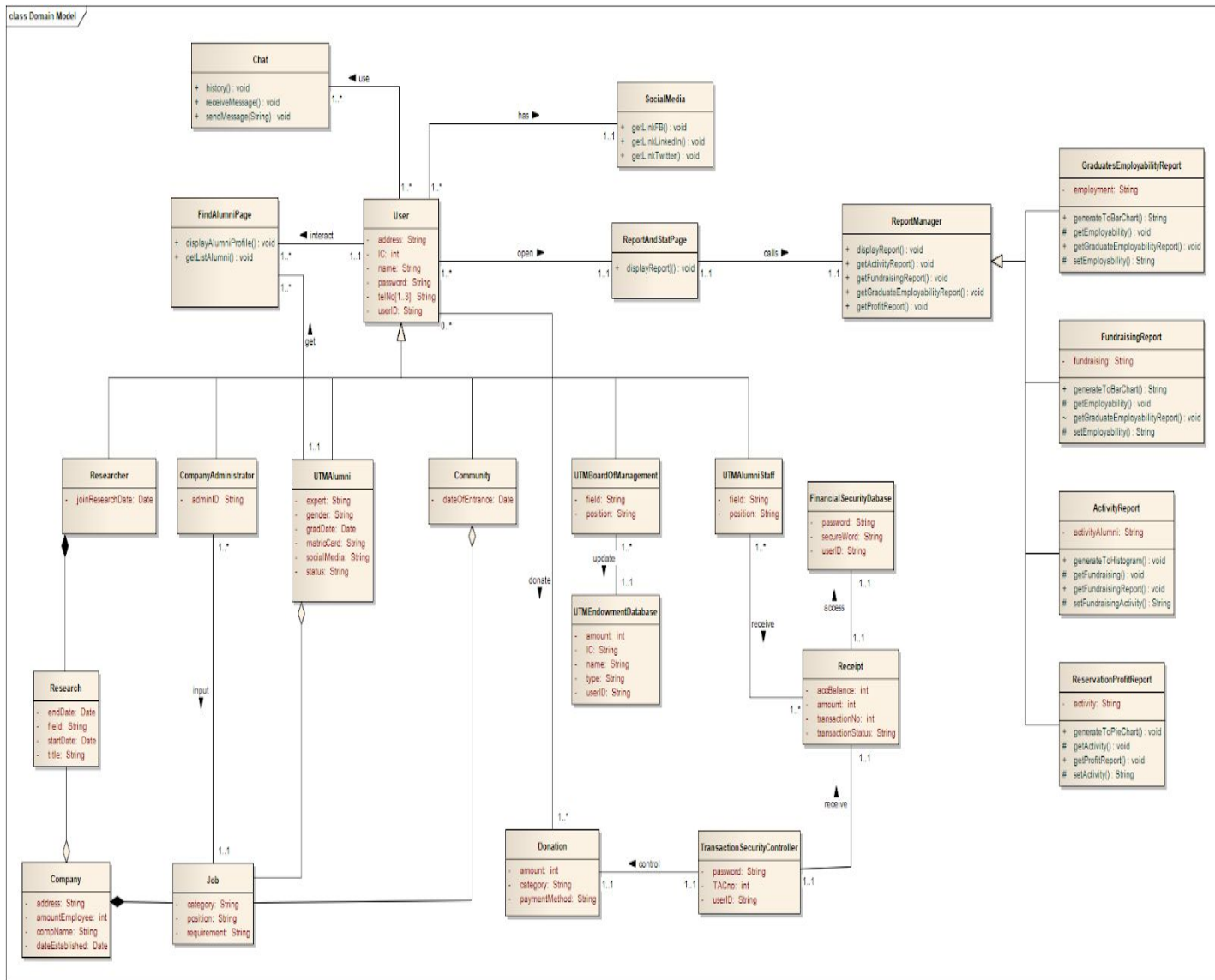
3. Specific Requirements

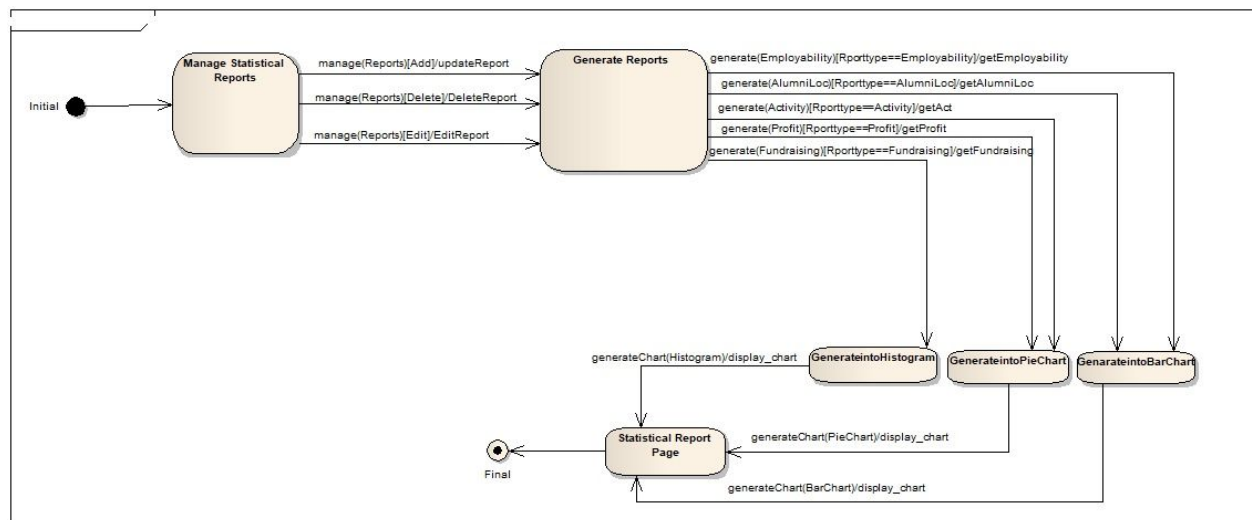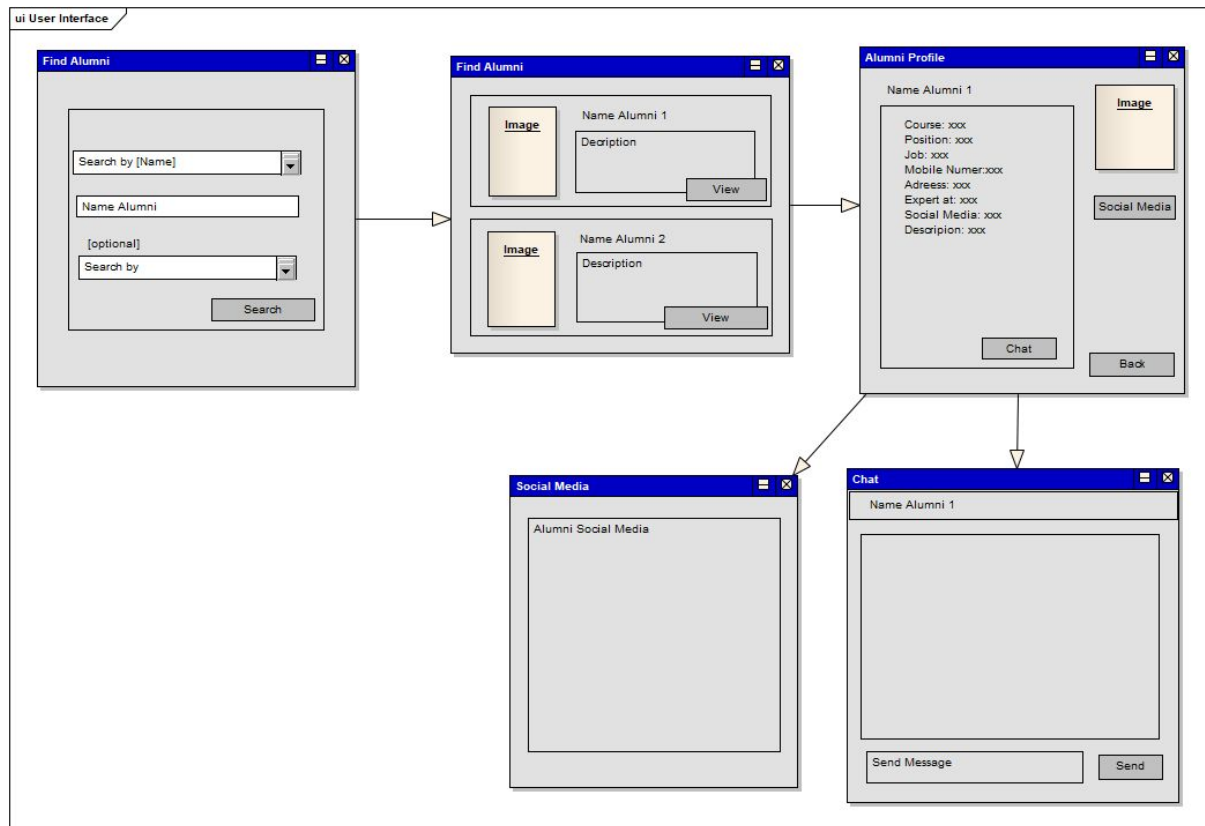**Figure 2.5: Domain Model of UTM Alumni Integrated System**

Figure 2.6: State Diagram of Statistical Report

3.1 External Interface Requirements

3.1.1 User Interfaces

3.1.1.1 Find Alumni Module Interface

The system will require users to choose either to search alumni by name, course, gender, expertise and graduation year, then enter the related alumni details. The system also allowed the user by search multiple categories. Then user will be view with the result of multiple list of alumni profiles. User need to choose the alumni profile. After the user click the button view alumni profile, the user will view alumni profile with the details. The user also can chat with the alumni by click on the chat button. Else, alumni also can view alumni's social media by click on the social media button. This will go to social media external site.

3.1.1.2 Find Company Module Interface
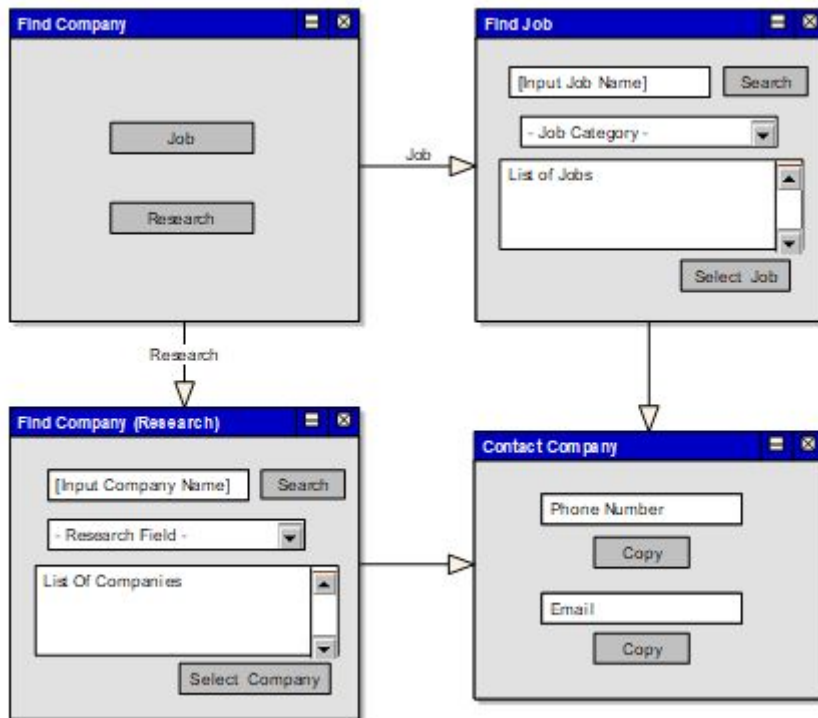
The system will require users to choose between 'Job' or 'Research'. If users choose 'Job', they will be linked into another interface that they can use search box and dropdown job category that will resulting to a complete related job lists and finally select preferred job. Else if users choose 'Research', they will be linked into another interface that they can use search box and dropdown research field that will resulting to a complete related company lists and finally select preferred company. After selecting, users will be directed to another interface which provide users with the company's phone number and email also a button to copy them.

3.1.1.3 Donation Module Interface

The system will require users to choose type of user which is either 'Community' or 'UTM Alumni'. Both choices will be linked into another interface where they can use dropdown list of donation category. There is also a radio button where user will choose the payment method of his/her choice. Then, the user needs to insert the amount of donation and proceed to the next step which is login detail or credentials. The user need to login with his/her userID, password and tick if it is the right secure word which have been determined during registration of account. The user will then be prompt to request TAC No. in order to submit transaction. Once submitted, it will generate receipt and indicate a successful transaction.

3.1.1.4 Statistical Report Module Interface

static & report page ▤ ☒

view employability report

view fundrising report

view profit reservation report

view activity report

show Alumni location
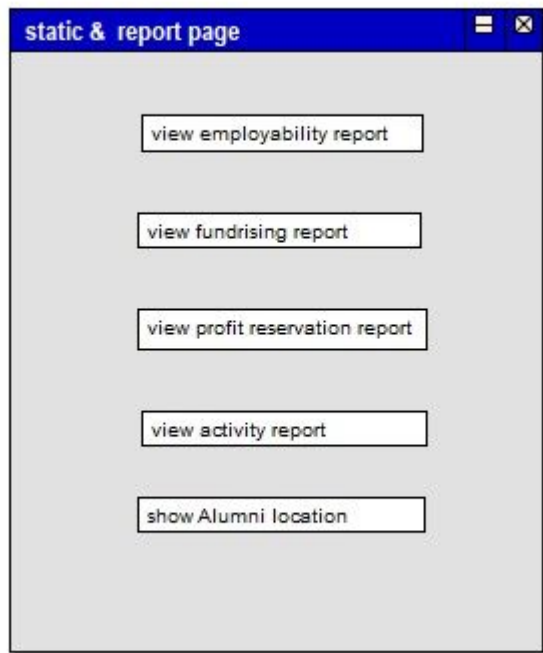
The system will show the register users statics & report page. The page will display Graduate Employability Report in Bar Chart, Activity Report in Pie Chart, Fundraising Report in Histogram, Profit Reservation Report in Pie Chart and Alumni Location in Bar Chart.

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3.1.2 Hardware Interfaces

Personal Computer - Any type of computer (e.g. PC, tablet, smartphone) will act as an interface to access UTM-ALIS. Below are the recommended requirements for the hardware:

Browser	Processor	RAM	Disk space	OS	HDD
All browser (best performed in Google Chrome)	All Intel or AMD – 1GHz	256MB	100 MB	Mac OS X 10.0 or Windows 8 and above	Min 250GB

Portable printer – Contain minimum requirements that support Windows and Macintosh.

Media type	Capacity	Resolution	Connectivity	Mobile device	Processor	Memory
Plain paper	Up to 50 sheets	Up to 600 dpi	-USB 2.0 : compliant high speed device -Bluetooth 2.0 Enhanced Data Rate	Windows mobile -Palm OS -Nokia Symbian	220Mhz ARM9 core	32 MB CCR2

3.1.3 Software Interfaces

• Name: MySQL database management system

• Mnemonic: MySQL

• Version number:-

    ☐ MySQL eases developers to establish and manage database in the form of table which is formatted; it has an open source user interface.

• Name: MapServer 7.0.4

• Mnemonic: MapServer

• Version number: 7.0.4

    ☐ MapServer belongs to Google; we use it to request the images of maps based on zoom level and coordinates (x,y). It has the ability to use Google Maps API. Google Maps API will sends MapServer a new set of tiles every time we zoom in the map.

• Name: Bootstrap 2.3.2

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    ☐ Bootstrap is free and open-source software that we will use for fast and easy web development with HTML- and CSS-based design. We also use it to create an intuitive user interface.

• Name: WeBuilder

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 ☐ We use WeBuilder to ease web developer in code editing. This software allows developers to create and manage code written in many languages such as PHP, JavaScript, HTML, etc.

• Name: FTP Client Software

• Mnemonic: SmartFTP

• Version number: 9.0

 ☐ This software allows files transfer between local computer and server on the Internet.

• Name: Enterprise Architecture

• Mnemonic: Enterprise Architecture

• Version number: 8.0

 ☐ This software helps in constructing Use Cases, Sequence Diagrams, Activity Diagrams and User Interface.

3.1.3 Communication Interfaces

File Transfer Protocol (FTP) will be used when the user wants to view statistical report from e-notification system through the TCP/IP network. TCP/IP is a communication protocol which manages data transfer throughout the Internet. At the same time, FTP will automate file transfer processes which is case update between UTM-ALIS, UTM database system and the E-Commerce Site. The HTTPS server will use 'push' protocol to update into the system, while 'pull' protocol will be used to retrieve updates from the web server when user uses the system.

3.2 System Features

3.2.1 Find Alumni Module

This module will be focusing on find alumni online and updating alumni details at the back-end program. Users (alumnus or community) must fill in some details to find the alumni. After entering the detail, they would need to choose alumni profile from list. Users then will be display with alumni profile and the user also can make chat with alumni or view alumni social media.
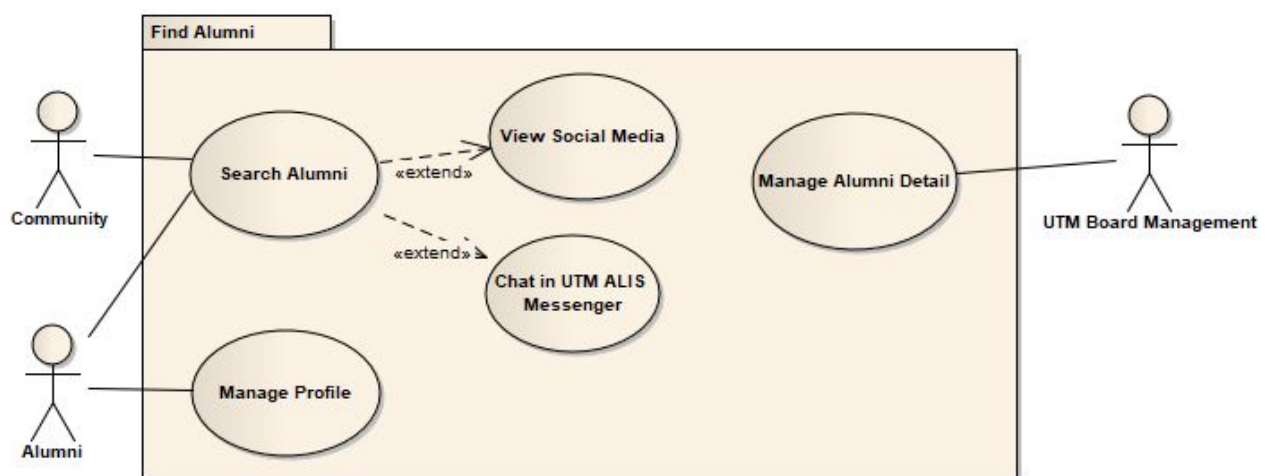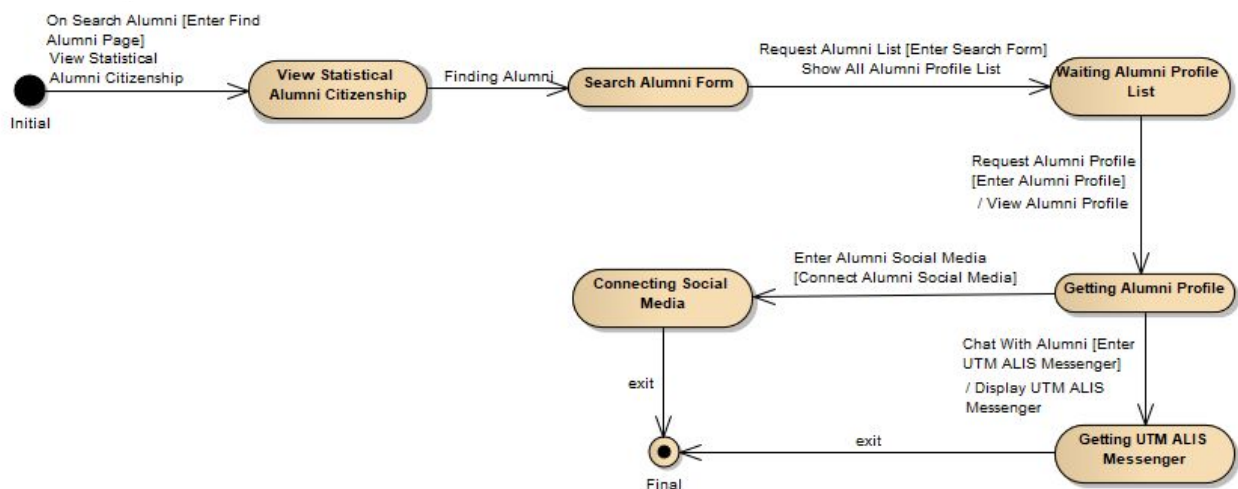

Figure 2.2.1 Use Case Find Alumni

Figure 2.2.1.1 State Diagram Find Alumni

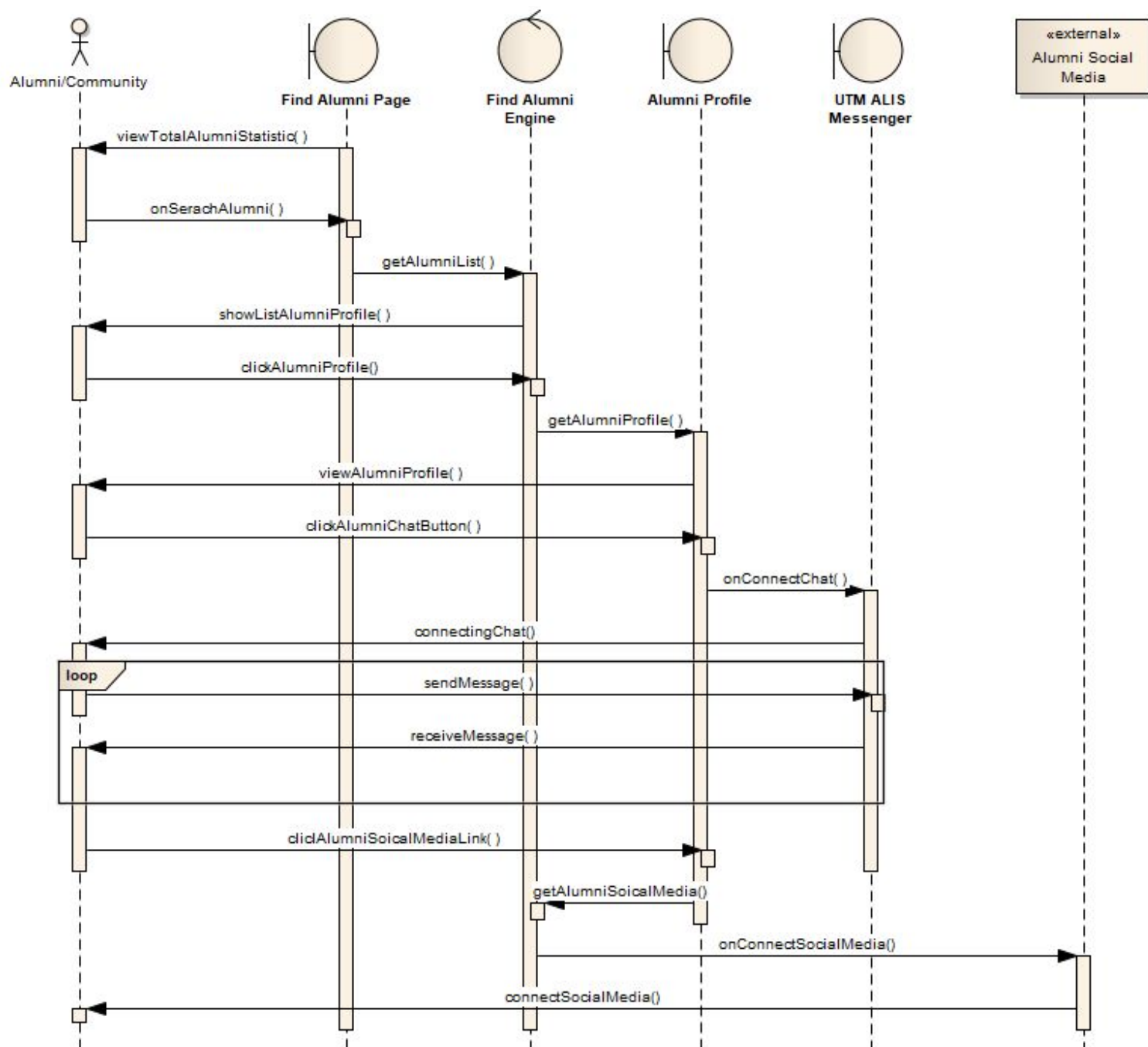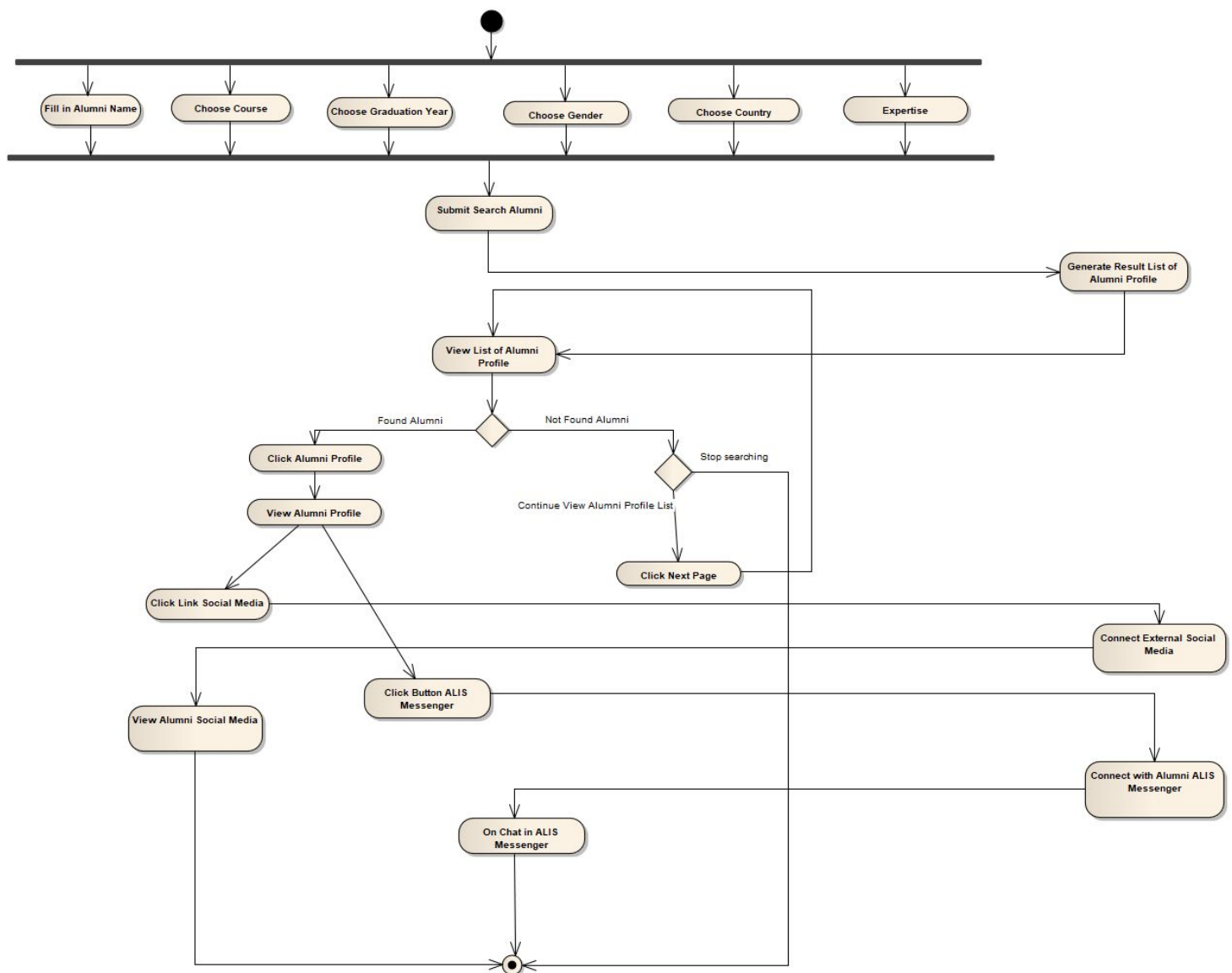| **Use Case: Find Alumni** |
|---|
| **ID:** UC001 |
| **Actors:** Alumni, Community |
| **Preconditions:** Alumni/Community has click on Find Alumni page |
| **Flow of events:**
   1. Alumni/Community view the statistical report of number of alumni
   2. Alumni/Community fills in the alumni name, gender, course, country, expertise and graduation year.
   3. Alumni/Community click on submit search button
   4. UTM ALIS system display all the alumni profile list
   5. If Alumni/Community clicks view Alumni Profile button, Alumni/Community do step 7.
   6. Else Alumni/Community click next button, UTM ALIS system display more alumni profile list. If Alumni Profile clicks view Alumni Profile, Alumni/Community do step 7. Else, Alumni/Community click back or home button, the use case is end.
   7. Alumni/Community view Alumni Profile
   8. If Alumni/Alumni click social media link, step 9 is followed. Else If Alumni click messenger button, step 10 is followed.
   9. UTM ALIS system make connection with external social media application. Alumni/Community view Alumni social media.
  10. UTM ALIS system make messenger connection with related alumni. |
| **Postconditions:** |

Figure 2.2.1.1.1 Sequence diagram Find Alumni

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  ┌──────────┐ ┌──────────┐ ┌──────────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐
  │ Fill in  │ │  Choose  │ │    Choose    │ │  Choose  │ │  Choose  │ │Expertise │
  │Alumni Name│ │  Course  │ │Graduation Year│ │  Gender  │ │ Country  │ │          │
  └──────────┘ └──────────┘ └──────────────┘ └──────────┘ └──────────┘ └──────────┘

                          ┌──────────────┐
                          │Submit Search │
                          │    Alumni    │
                          └──────────────┘
                                                              ┌──────────────┐
                                                              │Generate Result│
                                                              │List of Alumni │
                                                              │   Profile     │
                                                              └──────────────┘
                          ┌──────────────┐
                          │View List of  │
                          │Alumni Profile│
                          └──────────────┘

        Found Alumni        ◇      Not Found Alumni
                                                    Stop searching
  ┌──────────────┐                      ◇
  │Click Alumni  │
  │   Profile    │           Continue View Alumni Profile List
  └──────────────┘
  ┌──────────────┐                         ┌──────────────┐
  │ View Alumni  │                         │Click Next Page│
  │   Profile    │                         └──────────────┘
  └──────────────┘

  ┌──────────────┐                                        ┌──────────────┐
  │Click Link    │                                        │Connect       │
  │Social Media  │                                        │External Social│
  └──────────────┘                                        │    Media     │
                        ┌──────────────┐                  └──────────────┘
  ┌──────────────┐      │Click Button  │
  │ View Alumni  │      │ALIS Messenger│
  │ Social Media │      └──────────────┘
  └──────────────┘                                        ┌──────────────┐
                                                          │Connect with  │
                                                          │Alumni ALIS   │
                                                          │  Messenger   │
                        ┌──────────────┐                  └──────────────┘
                        │On Chat in    │
                        │ALIS Messenger│
                        └──────────────┘

                               ◉
```

Figure 2.2.1.1.1.2 Activity Diagram of Find Alumni

Use case: Manage Alumni Details
ID: UC002
Actors: UTM Board Management
Preconditions: 1. UTM Board Management successfully authenticate before updating Alumni details 2. UTM Board Management has click Alumni Details Page
Flow of Events: 1. UTM ALIS system display all alumni details 2. UTM Board Management view alumni details 3. If UTM Board Management click Edit Alumni Details, alternative 1 is followed. If UTM Board Management click Delete Alumni Details, alternative 2 is followed. If UTM Board Management click Add Alumni, alternative 3 is followed. 4. UTM ALIS display new updating details
Alternatives: 1. Edit Alumni Details 1.1 UTM ALIS system change to edit mode 1.2 UTM Board Management fill in new details 1.3 If UTM Board Management click save edit, step 1.4 is followed. Else UTM Board Management click cancel, the alumni details remain the same. 1.4 UTM ALIS system display new updating details 2. Delete Alumni Details 2.1 UTM ALIS system ask delete alumni details confirmation 2.2 If UTM Board Management click confirm delete, step 2.3 is followed. Else UTM Board Management click cancel, alumni details are remain the same. 2.3 UTM ALIS system delete the alumni details from the system. 3. Add Alumni Details 3.1 UTM ALIS system display new form to fill in new alumni details. 3.2 UTM Board Management fill in form 3.3 If UTM Board Management click save add details, step 3.4 is followed. Else Alumni details is not changing. 3.4 UTM ALIS system add new alumni details in the system.
Postconditions:
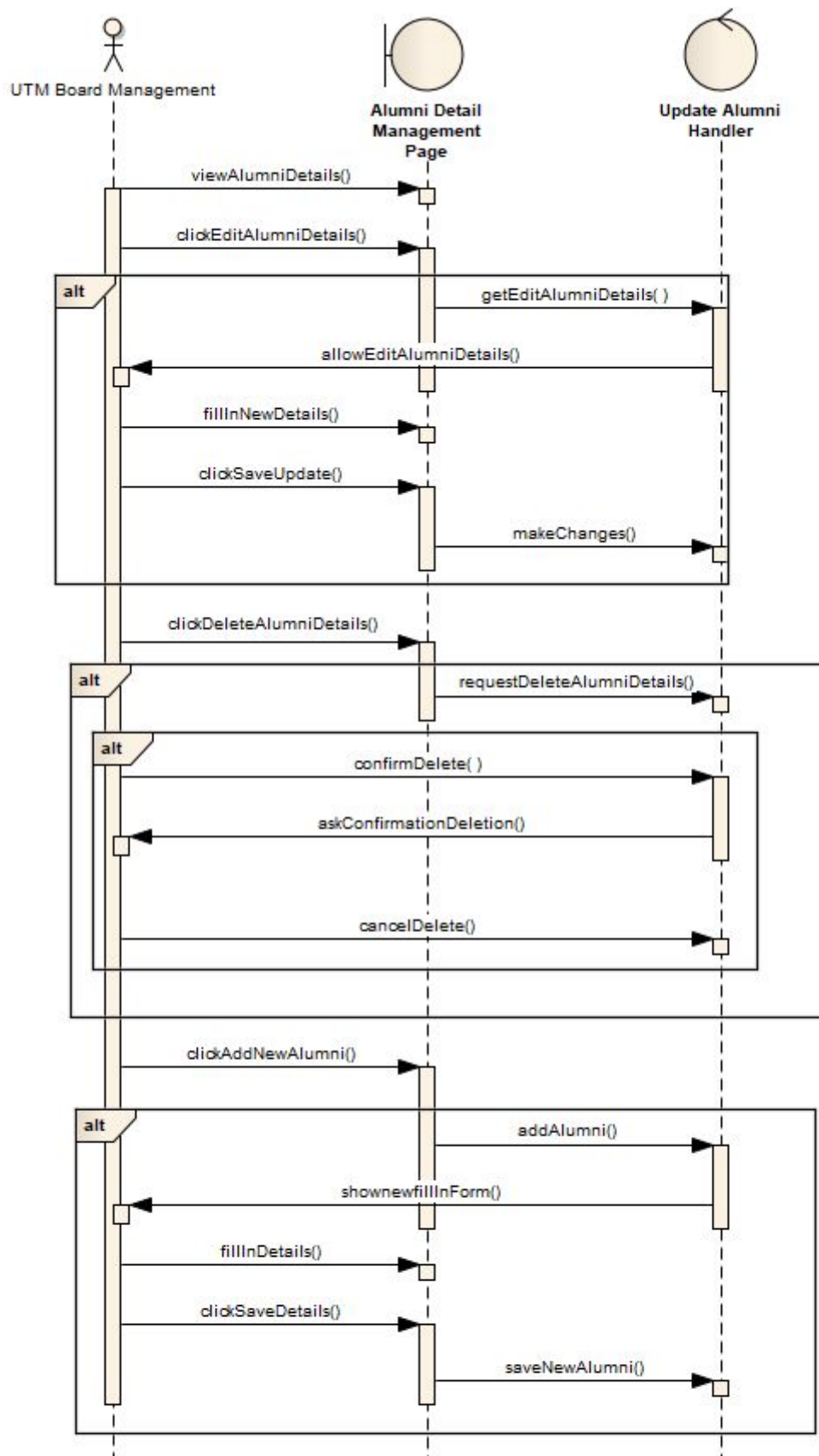
Figure 2.2.1.2.1 Sequence diagram Manage Alumni Details
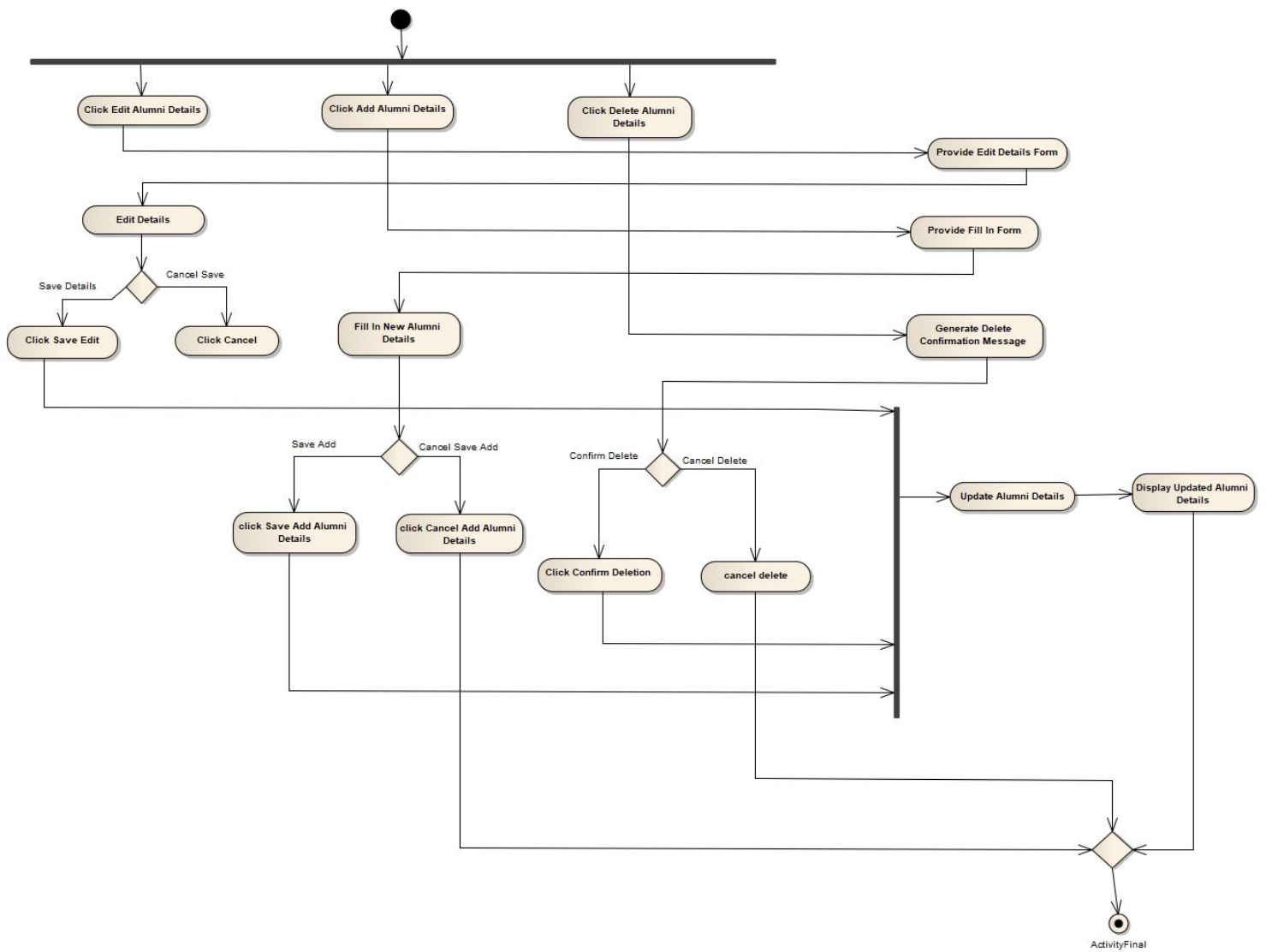
Figure 2.2.1.2.2 Activity Diagram of Manage Alumni Details

Use case: Manage Profile
ID: UC003
Actors: Alumni

Preconditions:
    1. Alumni successfully authenticate before updating the profile
    2. Alumni has click Profile page
    3. Default setting of display alumni details is in public

Flow of event:
    1. Alumni view profile.
    2. If Alumni click Edit Details. Alternative 1 is followed. If Alumni click Delete Details, alternative 2 is followed. If Alumni click Add Details, alternative 3 is followed. If Alumni click Hide Details, alternative 4 is followed.
    3. Alumni view the updating profile

Alternative:
    1. Edit Details
       1.1 UTM ALIS system provide edit form
       1.2 Alumni fill in new details
       1.3 If Alumni click save Edit Details, step 1.4 is followed. Else, Alumni click cancel, the Alumni details is remain the same.
       1.4 UTM ALIS system save update details
    2. Delete Details
       2.1 UTM ALIS generate delete confirmation message
       2.2 If Alumni click confirm delete, step 2.3 is followed. Else Alumni click cancel, the details is remain the same.
       2.3 UTM ALIS system delete the details from the system
    3. Add Alumni Details
       3.1 UTM ALIS system display new form to fill in new details.
       3.2 Alumni fill in form
       3.3 If Alumni click save add details, step 3.4 is followed. Else Alumni details is not change..
       3.4 UTM ALIS system add new alumni details in the system.
    4. Hide Details
       4.1 UTM ALIS hide Alumni details
       4.2 If Alumni click set to public, UTM ALIS set the alumni details to public. Else the details is remain hiding.

Postconditions:

Figure 2.2.1.3.1 Sequence diagram Manage Profile
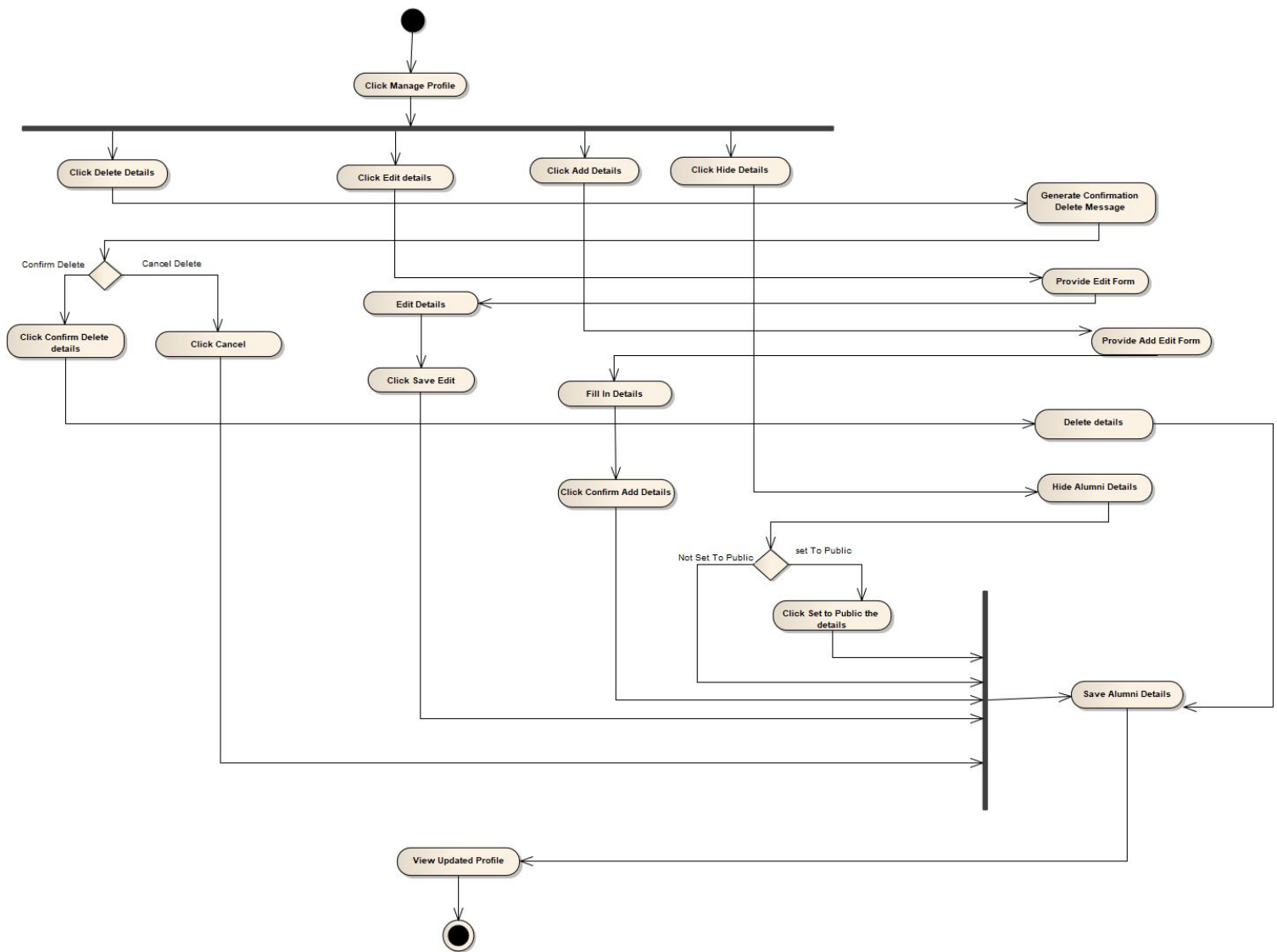
Figure 2.2.1.3.2 Swimlane Manage Profile

3.2.2 Find Company Module

This module let Alumnus, the Community also the Researchers to search job or company to collaborate in one research. The process is almost similar which they can search the job/company in the search bar, view the related job/company list, choose job category or company field in research and lastly contact the specified company. For this module, we would need Industry Administrator and UTM Board Management to provide company details also job details.
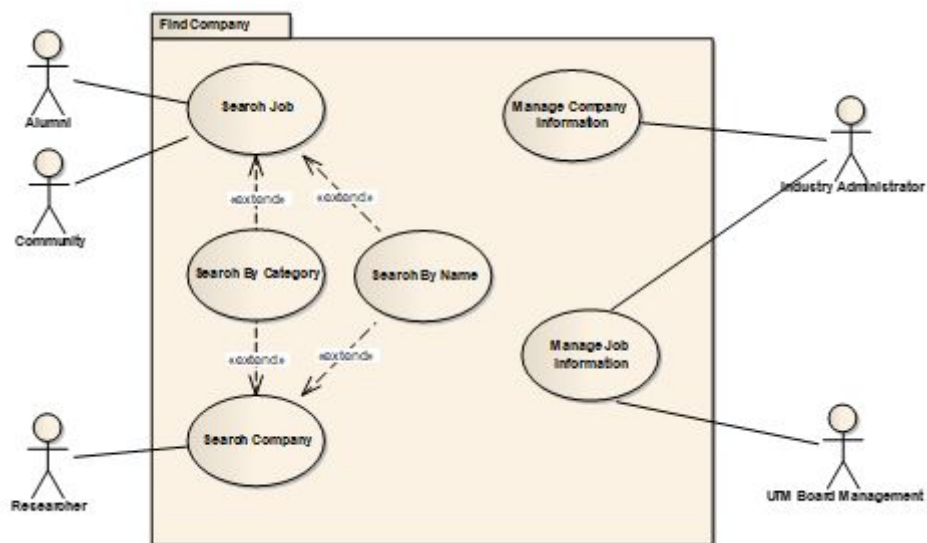
Figure 2.2.2 Use Case Find Company

Use case: Search Job
ID: UC004
Actors: Alumni, Community
Preconditions: ● Alumni/Community clicked on Job button ● Devices used to access the system must have Internet connection.
Flow of events: 1. Use case begins when Alumni/Community clicked on Job button. 2. If Alumni/Community prefer search by name, proceed to 3. Else if Alumni/Community prefer to search by category, proceed to 4 3. Alumni/Community input Job name 4. Alumni/Community input Job category. 5. UTM ALIS display list of Filtered Jobs. 6. Alumni/Community clicks on preferred job. 7. Alumni/Community clicks on 'Select Job' button 8. UTM ALIS display Company's phone number and email. 9. If Alumni/Community intend to copy Phone number & Email, proceed to 10. 10.   Alumni/Community clicks on 'Copy' button.
Postconditions:

Figure 2.2.2.1: Sequence Diagram of Search Job

Figure 2.2.2.2: Activity Diagram of Search Job

3.2.2.2 UC005: Search Company

Use case: Search Company
ID: UC005
Actors: Researcher
Preconditions: - Researcher clicked on Company button   - Devices used to access the system must have Internet connection.

Flow of events:

1. Use case begins when Researcher clicked on Company button.
2. If Researcher prefer search by name, proceed to 3. Else if Researcher prefer to search by category, proceed to 4
3. Researcher input Research name
4. Researcher input Research field.
5. UTM ALIS display list of Filtered Companies.
6. Researcher clicks on preferred company.
7. Researcher clicks on 'Select Company' button
8. UTM ALIS display Company's phone number and email.
9. If Researcher intend to copy Phone number & Email, proceed to 10.
10. Researcher clicks on 'Copy' button.

Postconditions:
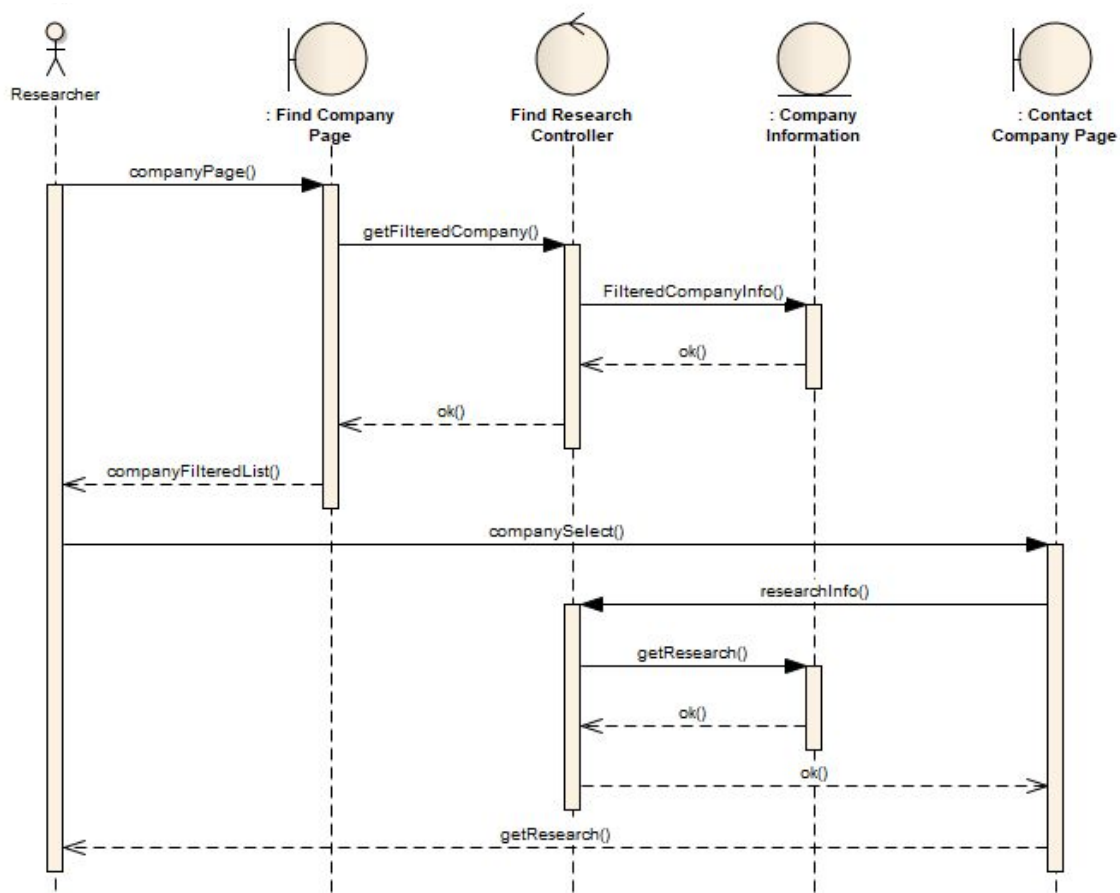
Figure 2.2.2.1: Sequence Diagram of Search Company
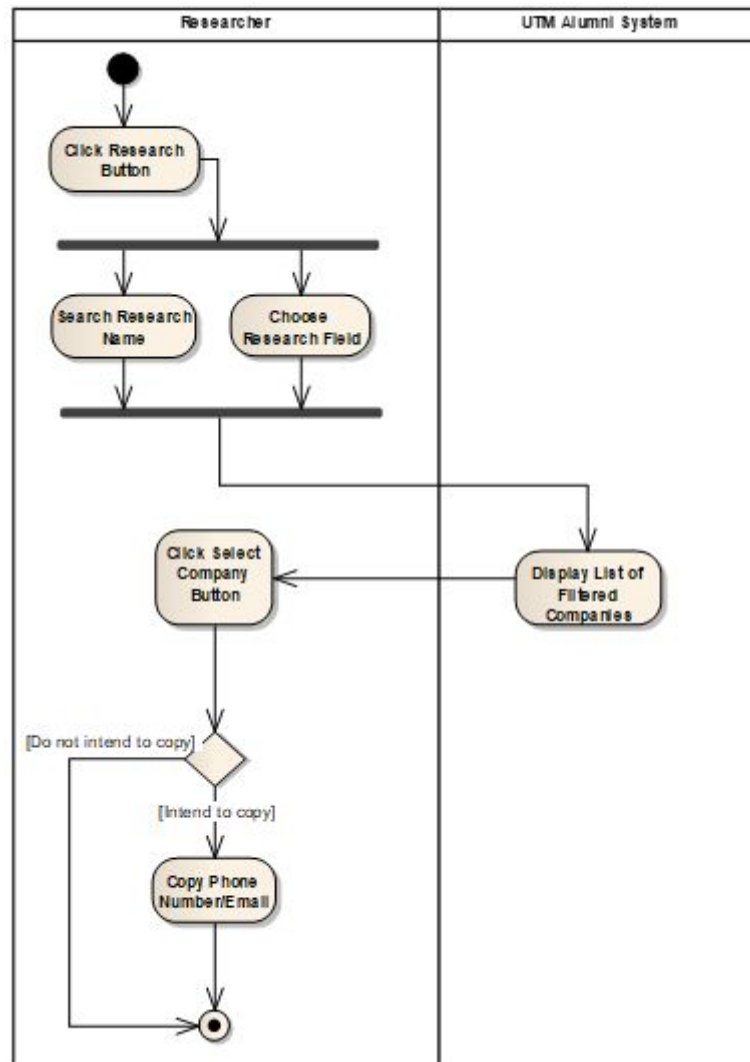
Figure 2.2.2.2: Activity Diagram of Search Company

3.2.2.3 UC006: Manage Company Information

Use case: Update Company Information
ID: UC006
Actors: Industry Administrator
Preconditions: ● Industry Administrator must have logged into the system. ● Devices used to access the system must have Internet connection. ● Industry Administrator must have information to fill in.

Flow of events:
  1. Use case begins when Industry Administrator clicked on 'Manage Company Details' button.
  2. Industry Administrator manage Company details
    2.2   Industry Administrator input Company Name
    2.3   Industry Administrator input Company's Research Scope
  3. UTM ALIS display confirmation messages.

Postconditions:
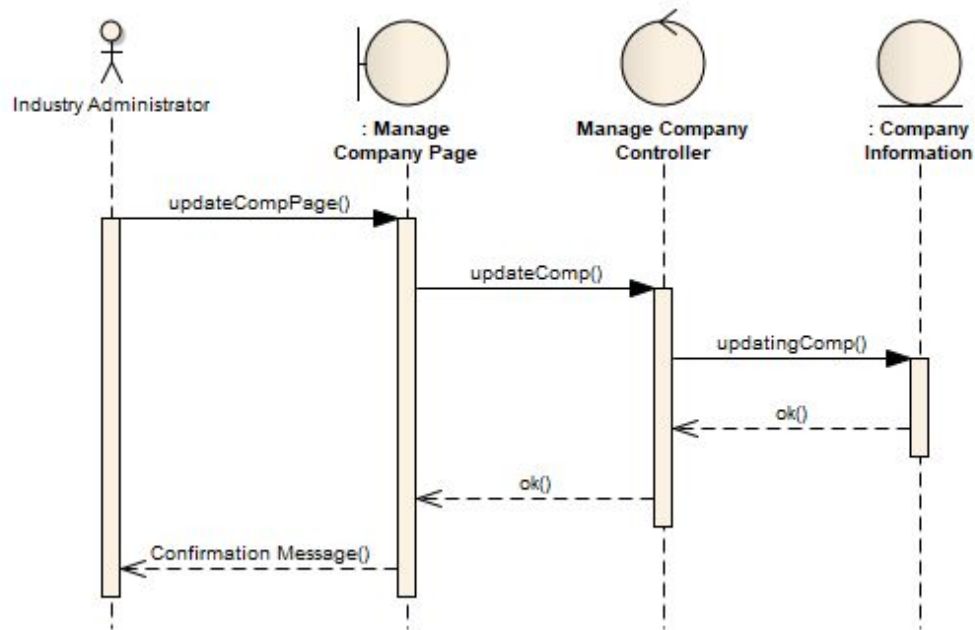
Figure 2.2.2.3.1: Sequence Diagram of Update Company Information
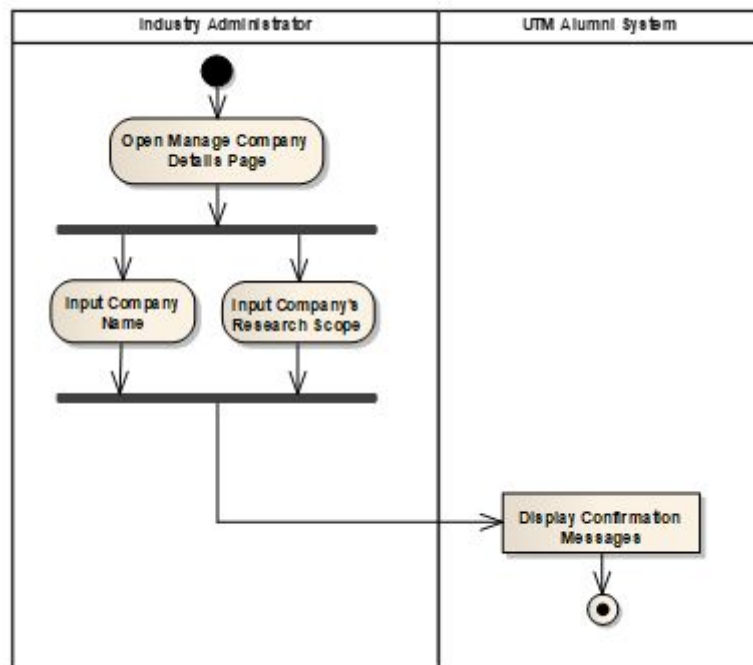
Figure 2.2.2.3.2: Activity Diagram of Update Company Information

Use case: Update Job Information
ID: UC007
Actors: Industry Administrator, UTM Board Management
Preconditions: ● Actors must log in into the system. ● Devices used to access the system must have Internet connection. ● Actors must have information to fill in.

Flow of events:
1. Use case begins when Industry Administrator/UTM Board Management clicked on 'Manage Job Details' button.
2. Industry Administrator/UTM Board Management manage Job details
   2.2 Industry Administrator/UTM Board Management Inputs Job Position
   2.3 Industry Administrator/UTM Board Management Inputs Job Requirements
   2.4 Industry Administrator/UTM Board Management Inputs Job Details
   2.5 Industry Administrator/UTM Board Management checks if Job is Occupied.
      2.5.3 If Job is Occupied, Industry Administrator/UTM Board Management click on 'Remove Job' button. Else, proceed 3
3. UTM ALIS display confirmation messages.

Postconditions: Confirmation messages must be displayed

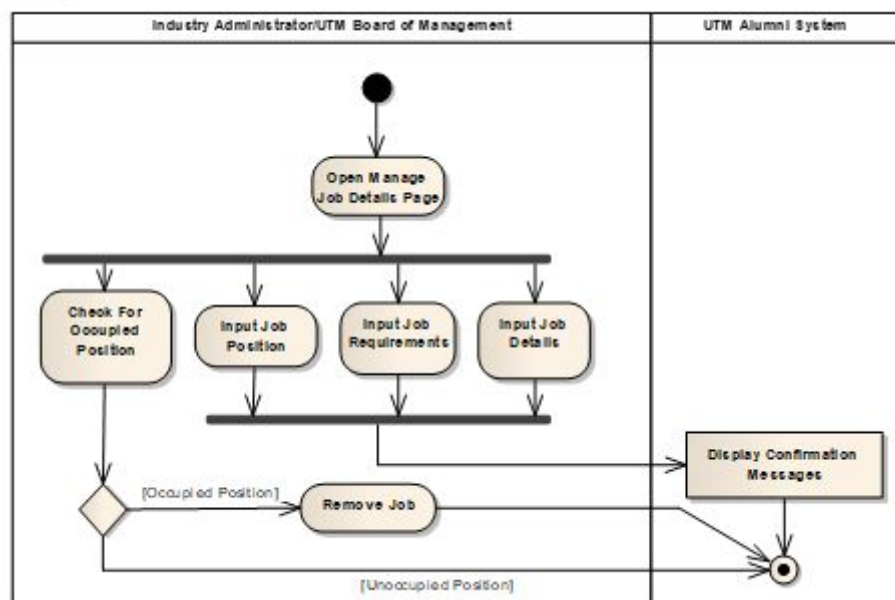**Figure 2.2.2.4.1: Sequence Diagram of Update Job Information**

Figure 2.2.2.4.2: Activity Diagram of Update Job Information

3.2.3 Donation Module

This module will be focusing on gathering donation online. Users (alumnus or community) will be provided with choices on donation category. After choosing the categories, the would need to choose on which method they want to perform their payment. Users then will be needed to key in their personal details then submit the donation. For every donation submitted, users will be presented a receipt and acknowledgement for their kind gesture. If the alumni or community is unclear about the procedures, they may contact alumni staff for further details. UTM ALIS Staff and UTM Board Management are also taking part in this module where they need to receive the donation form and UTM Board Management will then manage funds by updating the UTM Endowment Database.
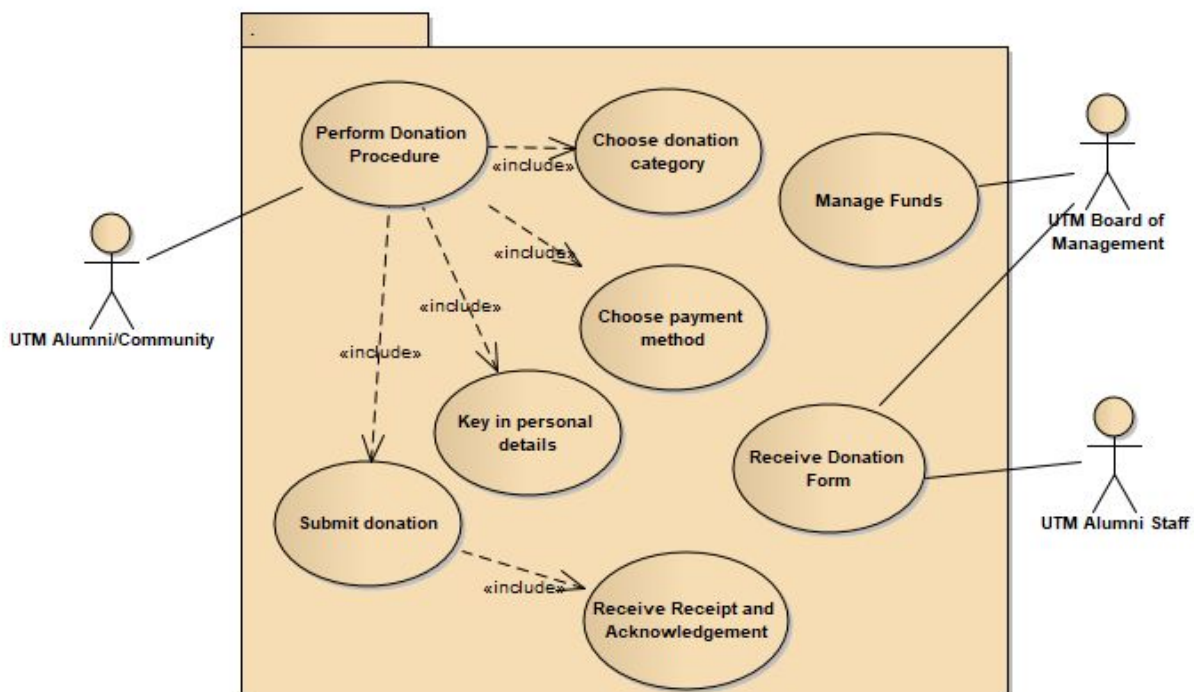
Figure 2.2.3 Use Case Make Donation

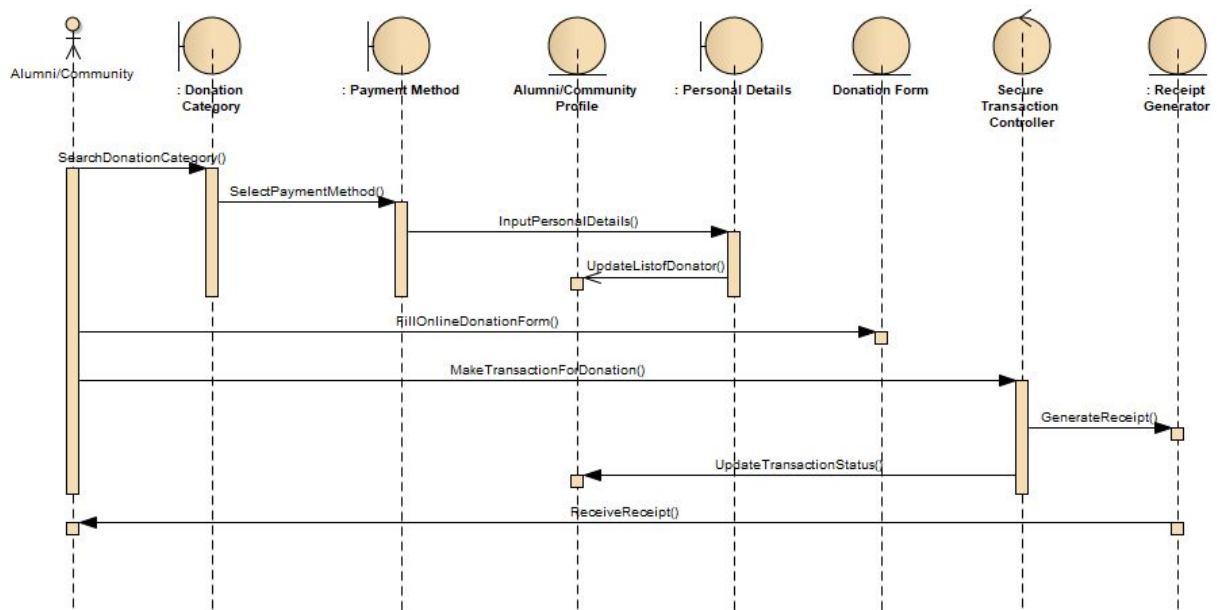| |
|---|
| **Use case: Perform Donation Procedure** |
| **ID**: UC008 |
| **Actors**: Alumni, Community |
| **Preconditions**:
● Devices used to access the system must have Internet connection to access online payment
● Payment type does not involve cash
● Minimum amount for donation will be RM1 but there is no maximum amount for donation. |
| **Flow of events:**

1. User picks type either as UTM Alumni or as community before moving on to the next procedure.
2. The system displays an online donation for the user.
3. Alumni/Community chooses donation category.
4. Alumni/Community chooses payment method either Touch-N-Go E-Wallet, paypal, credit card or debit card.
5. Alumni/Community key in amount to donate in any type of currency (RM, $, etc.)
6. Alumni/Community is prompt to E-Commerce System for further donation procedures.
   6.1 Alumni/Community fills in login credentials in the E-Commerce site and in the online banking site.
   6.2 Alumni/Community fills in TAC No. which will be given through phone and submit the transaction.
   6.3 The E-Commerce site will generate receipt that indicates status of transaction.
7. User is redirected to homepage of system with a new notification on receipt and an online text consisting of acknowledgement for making the donation. |
| **Postconditions:**
● Receipt will have two possibilities of transaction status which is either 'SUCCESSFUL' or 'FAILURE' |

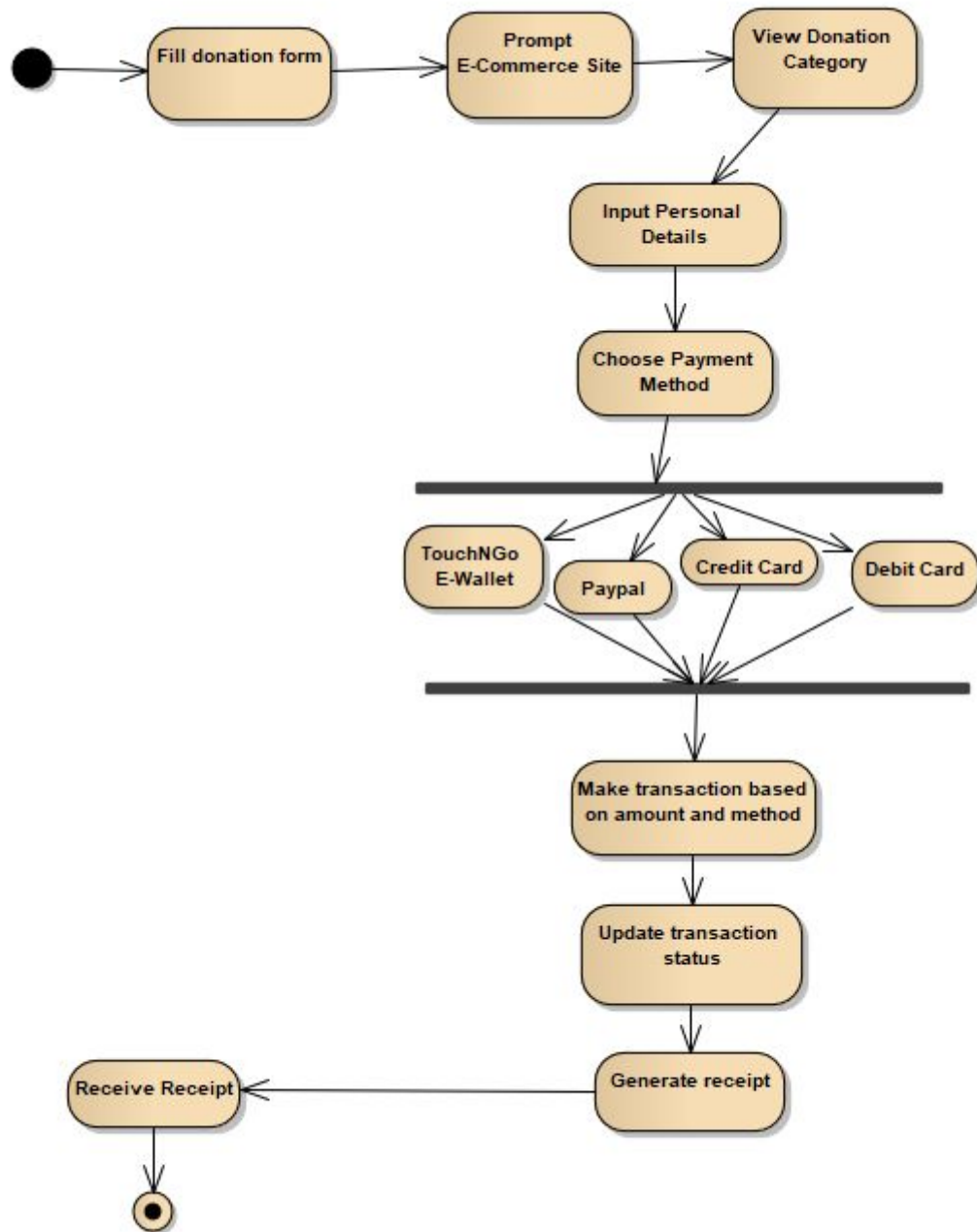**Figure 2.2.3.2.1.1: Sequence Diagram of Perform Donation Procedure**

Figure 2.2.2.3.2.2.: Activity Diagram of Perform Donation Procedure

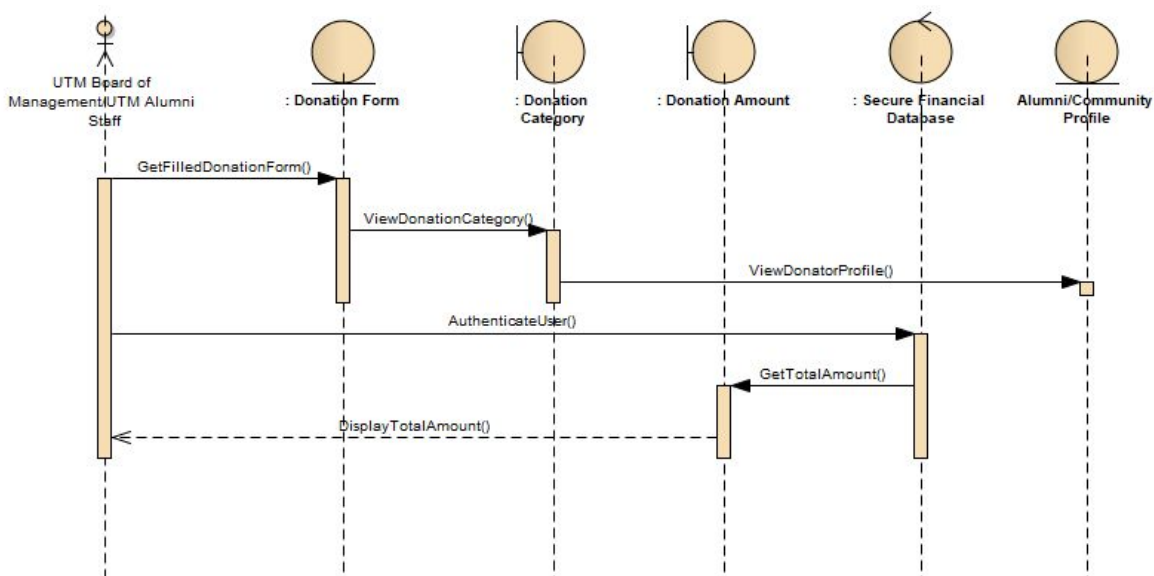| Use case: Receive Donation Form |
|---|
| **ID**: UC009 |
| **Actors**: UTM Alumni Staff, UTM Board of Management |
| **Preconditions**:
● User Authentication must be perform as single sign-on
● Devices used to access the system must have Internet connection to access UTM-ALIS System |
| **Flow of events:**

1. UTM Board of Management/Alumni Staff receives donation form that has been submitted from donator.
2. UTM-ALIS System will be prompt to the E-Commerce Site.
3. UTM Board of Management/Alumni Staff will view list of donor profiles.
4. User authentication is needed to proceed with viewing full details of donation by donor.
5. UTM Board of Management/Alumni Staff will get total amount of donation upon successful authentication.
6. Total amount of funds will be displayed for UTM Board of Management and UTM Alumni Staff |
| **Postconditions: -** |

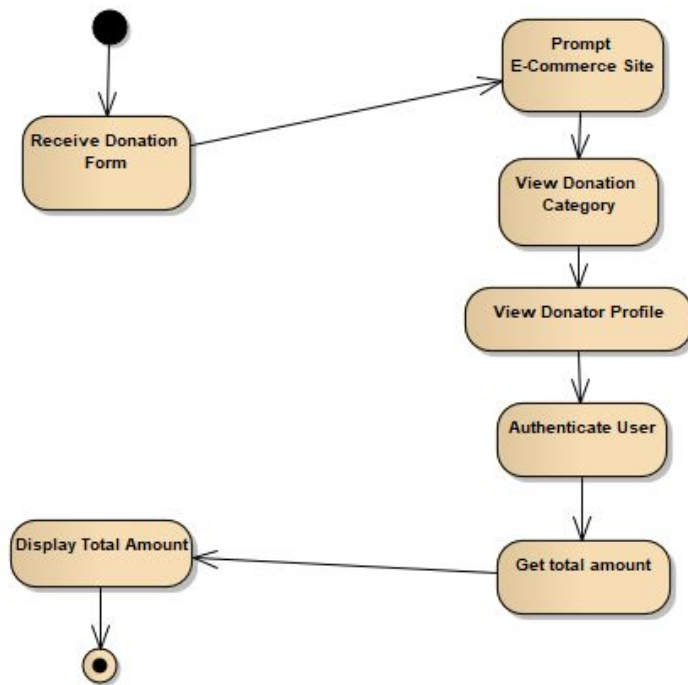

Figure 2.2.3.2.2.1: Sequence Diagram of Receive Donation Form

Figure 2.2.2.3.2.2.2: Activity Diagram of Receive Donation Form

3.2.3.2 UC010: Manage Funds

| Use case: Manage Funds |
|---|
| **ID**: UC010 |
| **Actors**: UTM Board of Management |
| **Preconditions**:
● UTM Board of Management must access online database in a secure VPN connection. |
| **Flow of events:**
1. UTM Board of Management/Alumni Staff receives donation form that has been submitted from donor..
2. UTM-ALIS System will be prompt to the E-Commerce Site.
3. UTM Board of Management/Alumni Staff will view donor profile.
4. User authentication is by logging in to proceed with viewing full details of donation by donor..
5. UTM Board of Management/Alumni Staff will get total amount of donation upon successful authentication.
6. Total amount will be displayed.
7. Every transaction will be updated in UTM endowment database system.
8. It will display recent transaction made to UTM Board of Management for further procedures. |
| **Postconditions:**
● Maintenance of Database System such as data cleaning needs to be done continuously to provide any data redundancy or data loss. |
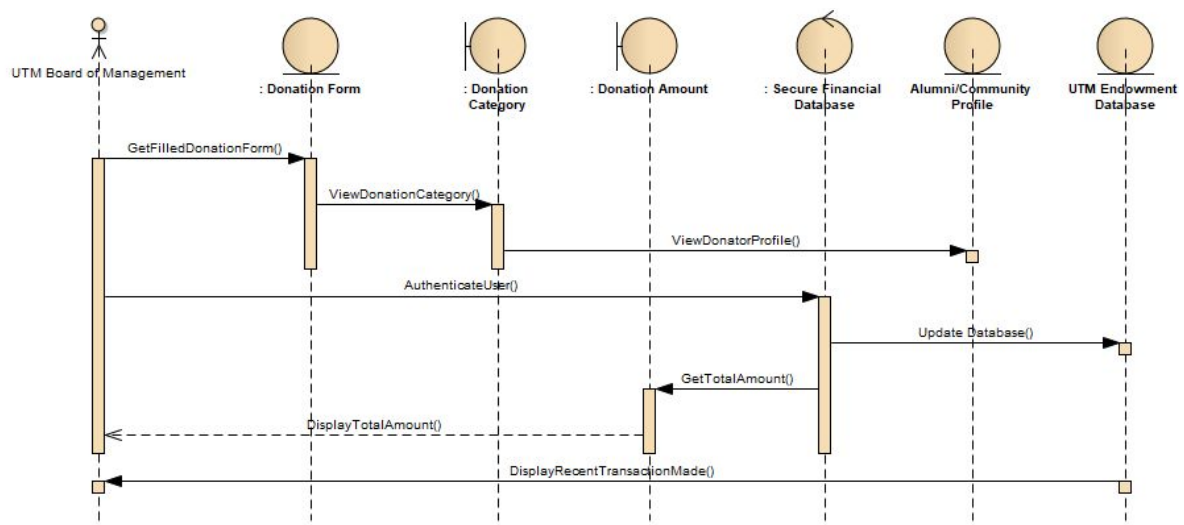
Figure 2.2.3.2.1: Sequence Diagram of Manage Funds
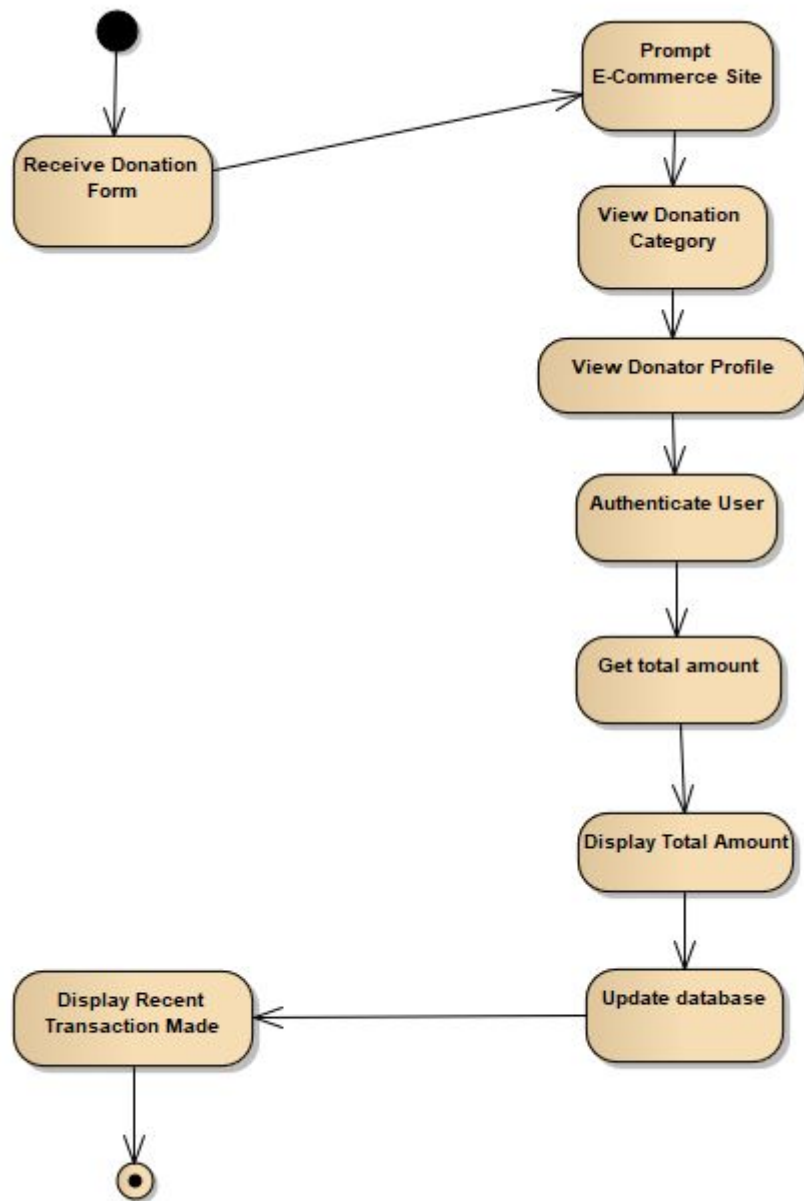
Figure 2.2.3.2.2: Activity Diagram of Manage Funds

3.2.4 Statistical Report Module

This module let Alumnus and the Community to view the statistical report. They can view graduate employability, activity, fundraising and profit reservation statistic.
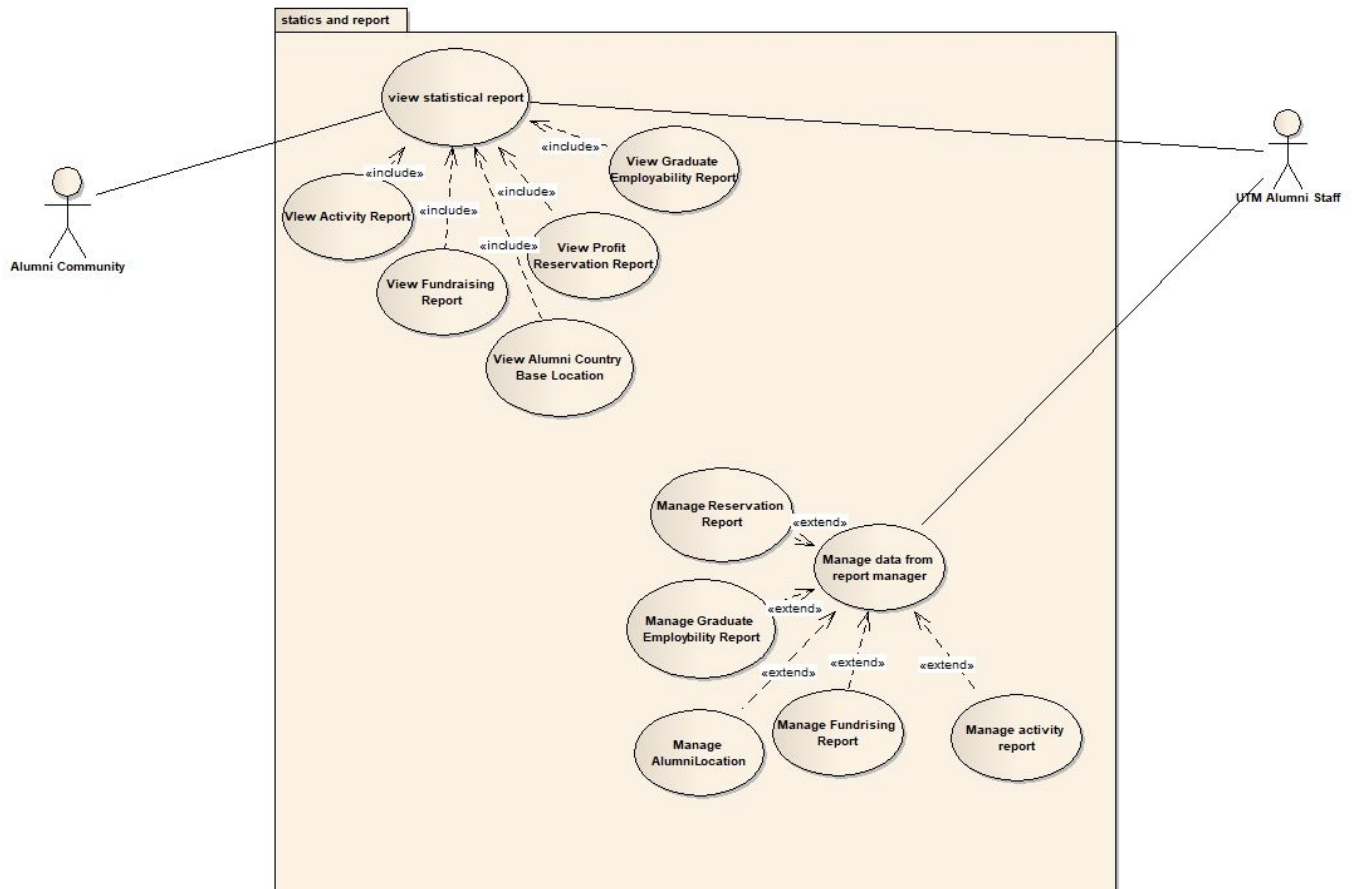

Figure 2.2.4 Use Case Statistical Report

3.2.4.1 UC011: View Statistical Report

Use Case: View Statistical Report
ID: UC011
Actors: Alumni Community/Staff
Preconditions: Devices used to access the system must have Internet connection and need to login.

Flow of event:
1. The event starts when the user clicks on the button "view statistical report".
2. The system displays Statistical Reports in Chart.

    2.1 For Employability Report Alternative Flow 1 is followed.

    2.2 For Fundraising Report Alternative Flow 2 is followed.

    2.3 For Activity Report Alternative Flow 3 is followed.

    2.4 For Profit Reservation Report Alternative Flow 3 is followed.

    2.5 For Alumni Country Based Location Alternative Flow 1 is followed.

Alternative Flow:
1. The system generates the report on a bar chart.
   The system display the bar chart on the screen.

2. The system generates the report onto a histogram.
   The system displays the histogram on the screen.

3. The system generates the report onto a pie chart.
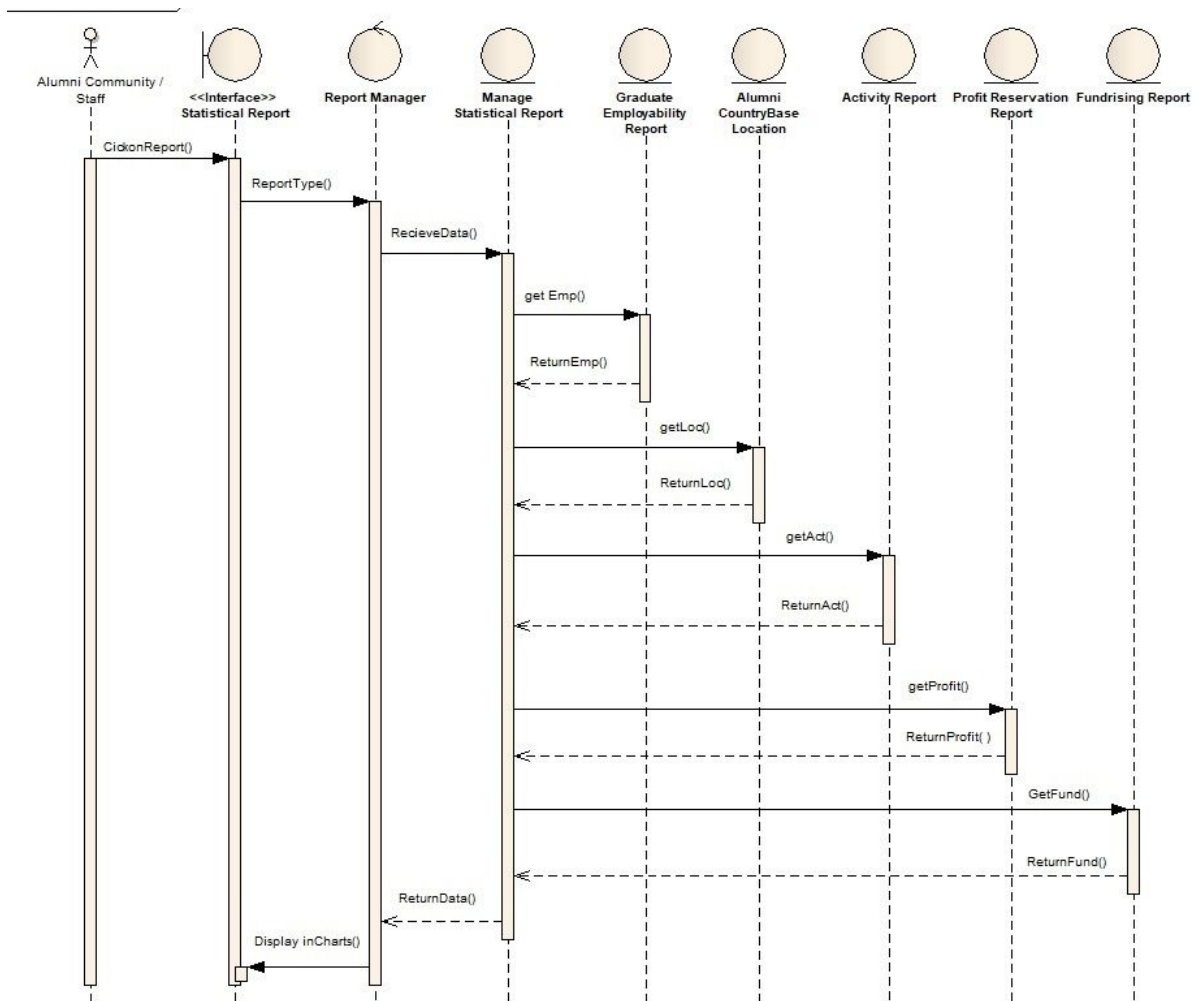   The system displays the pie chart on the screen.

Postcondition:

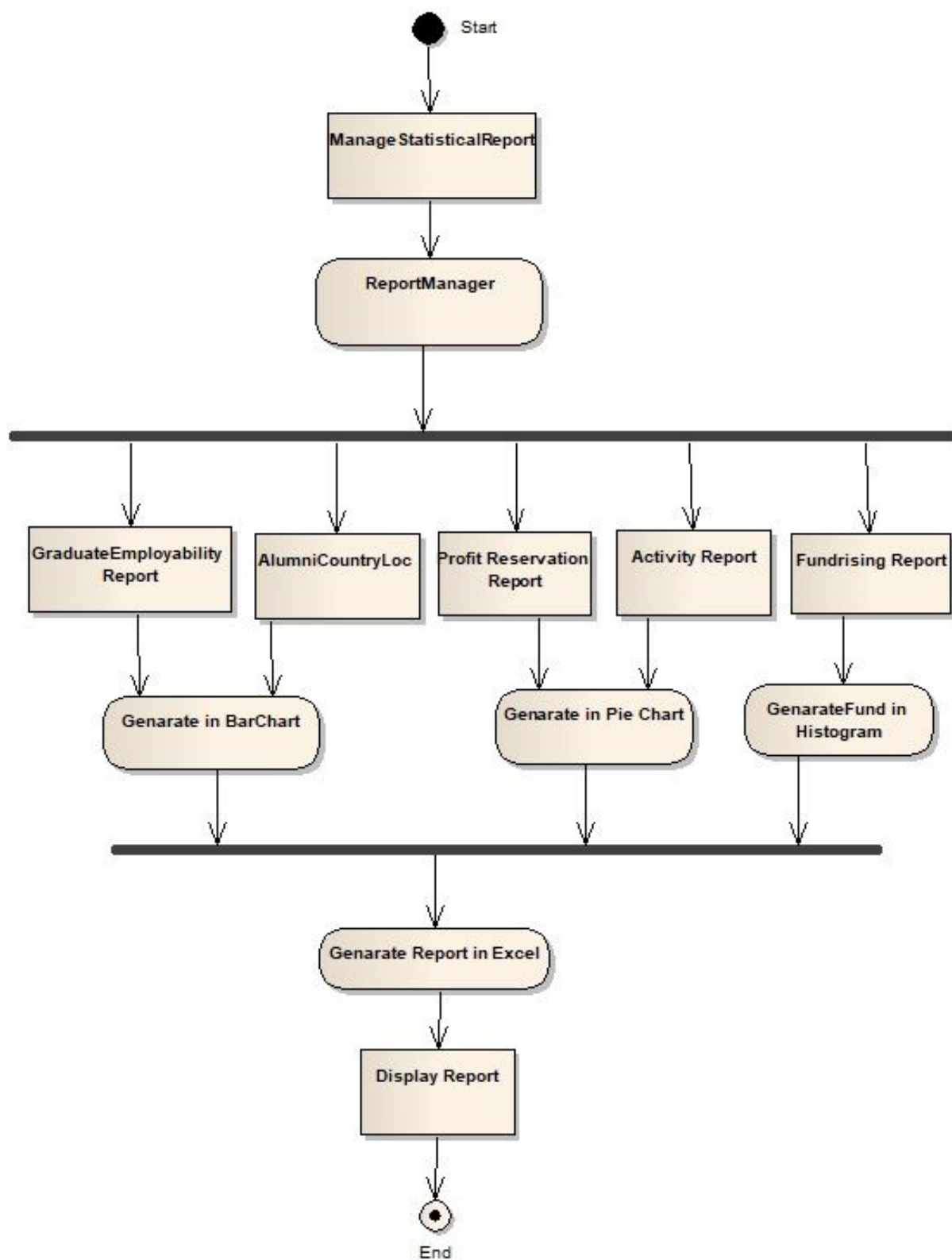**Figure 2.2.4.1.1: Sequence diagram of View Statistical Report**

Figure 2.2.4.1.2:Activity diagram of View Statistical Report

| Use case name:	Manage statistical report data from report manager	
Scenario:	statistical report data stored in the database.	
Triggering Event:	UTM Alumni Staff logins the system to manage the statistical report data stored in the database.	
Brief Description:	To manage the data stored, UTM Alumni Staff has to login the system with valid username and password first. After verification successful, admin can control and manage the statistical report data.	
Actors:	UTM Alumni Staff/UTM Board Management	
Related Use Cases:	-	
Stakeholders:	UTM Alumni Staff/UTM Board Management	
Pre-conditions:	UTM Alumni Staff must has valid ID to login the system.	
Post-conditions:	The data stored in the database is updated.	
Flows of Events	Actor	System
	1. UTM Alumni Staff login ALIS system 2. UTM Alumni Staff access the database and retrieve data from it. 3. UTM Alumni Staff can select either one of the ways (add, delete, update) to do with the data.	1.1 Display admin interface. 2.1 Display database. 4.1 Publish updated data and contents on interface after changes are made.
Exception Conditions:	1. If the UTM Alumni Staff enters wrong username or password, system will prompt invalid message and ask for correct input. 2. If the UTM Alumni Staff remains inactive for 5 minutes when accessing the data, the system will request for password in order to access database again.	
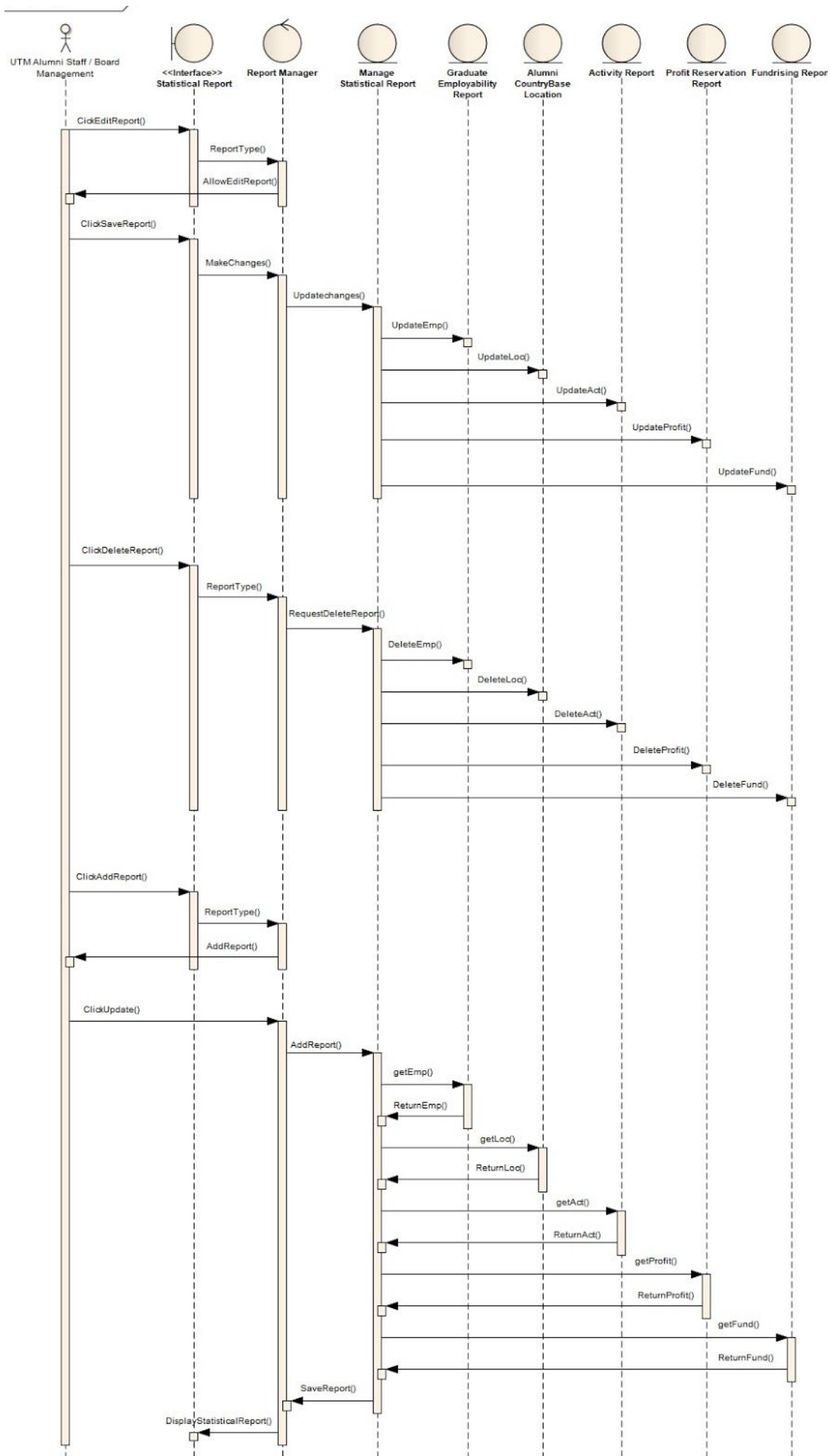
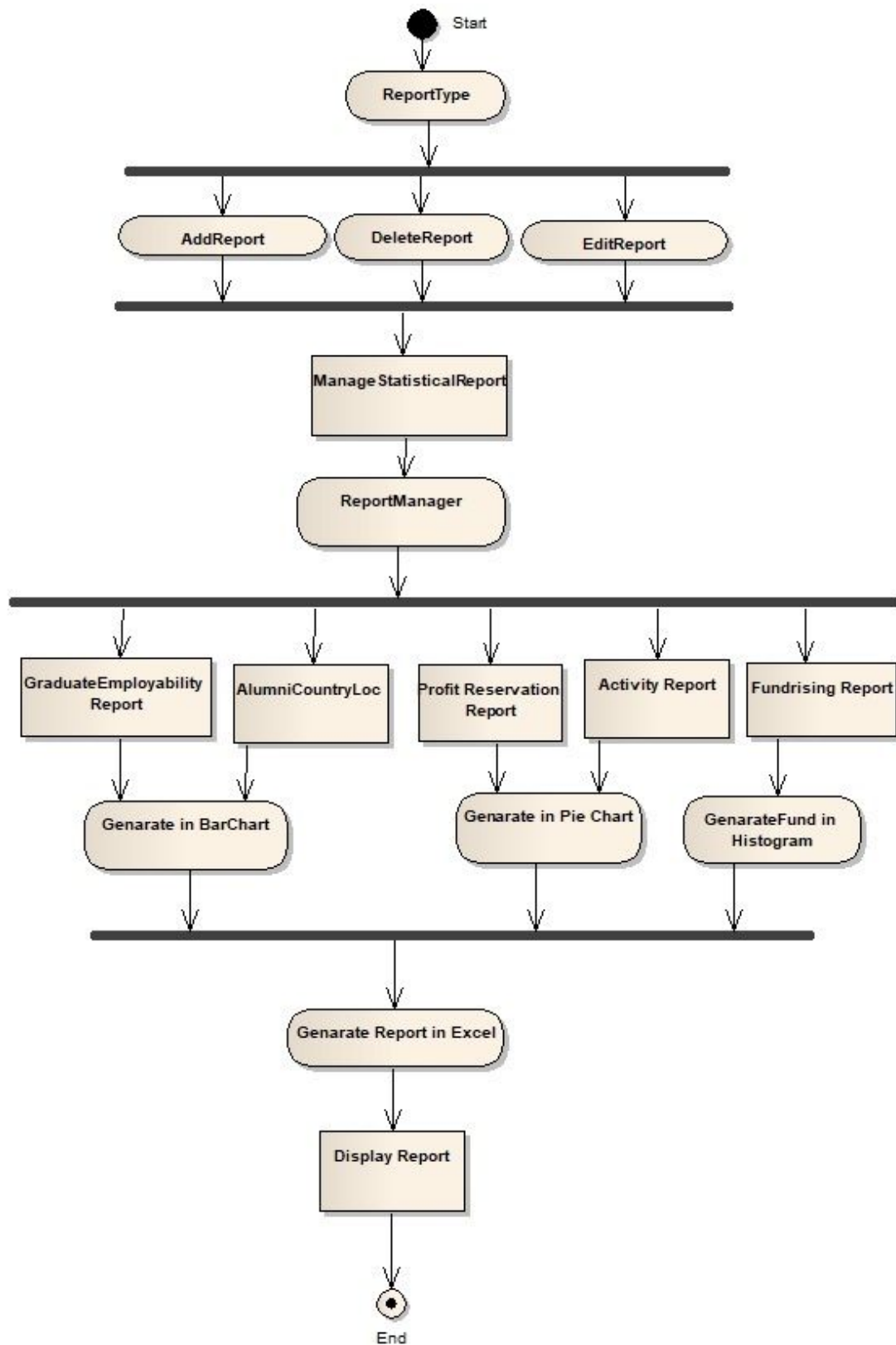**Figure 2.2.4.2.1: Sequence diagram of Manage Statistical Report**

Figure 2.2.4.2.2:Activity diagram of Manage Statistical Report page

3.3 Performance Requirements

•The system shall enable inspector to login before accessing the system.

• The system shall be able to keep information of more than two hundred thousand users.

• The user who has internet connection shall be able to access the system.

•The system shall not allow any incomplete submission of registration and login request.

3.4 Design Constraints

•The system must provide be able to provide a graphical user interface in English or Malay as a normal standard for the system of the organization in Malaysia.

•When user having connection problem with the server, the system might lost the data or information that user currently updates into the system, since user not yet click the submit button.

•Requirement elicitation shall be done with IEEE Std 830-1998 IEEE Recommended Practice for Software Requirements Specifications as standard.

3.5 Software System Attributes

•The system shall be developed with simple and clear user interface to help the user to access the system easily.

•User should has the ability to make reservation and payment.

3.6 Other Requirements

• The system shall run on every browser (e.g. Chrome, Safari, Firefox etc.), operating system (Windows, ios, Linux, etc.) and run on mobile devices.

• When the system crashes it shall return back at most one hour in maintainability purposes.

•All the code shall be full documented. Thus, the system shall be able to expand its functionality to meet the changing needs in the future.

•Only authenticated users shall be able to access and use the system.