Software Maintenance Report

for

Purchasing System

Version

Group No.: Assignment – Group 8

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Revisions

Version	Primary Author(s)	Description of Version	Date Completed
1.0	Mohamed Hamidi bin Mohamed Saufi	None	9/8/2019

1 System Overview

1.1 Description

A Purchasing System is a system used by numerous organizations to aid their businesses management in terms of their inventory. This system manages the entire acquisition process from purchase requisition to invoice and acts as a key component of effective inventory management. Whenever an organization lacks certain items due to an increase in organizational size, replacement of defective items or relocation, organizations or companies make use of this system to purchase the desired items which are available from several vendors so that they can continue their operation. The process of purchasing items via the purchase system can be complex. It starts with requisition of requested items, request for quotation, record quotation, issue purchase order, record delivery order and lastly recording the invoice. At the end of the process, the requested items will be finally delivered to such organization for usage with information of each process are available for viewing of its status and descriptions of which processes are each attached to.

The Purchasing System used in this maintenance assignment is a web-based application that utilized Django libraries with the use of Microsoft Visual Studio 2017 Professional and Python as it's language. Django is an open-source web framework, designed specifically for Python language, to simplify the creation of database-driven websites.

1.2 Actors

There are mainly three actors that used the purchasing system, including a manager, finance executive, and system administrator. The following table (Table 1.2) shows the expected level of knowledge for each actor.

Actor	Description	Required Knowledge
Manager	An individual who uses the purchase system to issue purchase requisition.	Basic knowledge of creating and viewing purchase requisition.
Finance Executive	An individual who uses the purchase system to issue the purchase price of the items.	Basic knowledge of other activities, including the request for quotation, record quotation, issue purchase order, record delivery order, and record invoice.
System Administrator	A developer who performs maintenance on the purchase system.	Basic knowledge of system maintenance skills, including managing the user accounts, requisitions, quotations, purchase orders, delivery orders, and invoices.

Table 1.2: Actors of Purchasing System

1.3 Assumptions and Dependencies

The assumptions and dependencies of the purchase system are as follows: -

1.3.1 Related Software and Hardware

There are no hardware requirements that will be used to setup the purchase system. Purchase system is a web portal that can run on any personal computer via a web browser. It is required to have an internet connection to run the system. The system requires support of following software tools:

- Microsoft Visual Studio 2017 Professional to use for manipulating the python code
- Web Browser to test the result of web framework

1.4 Use Case Diagram
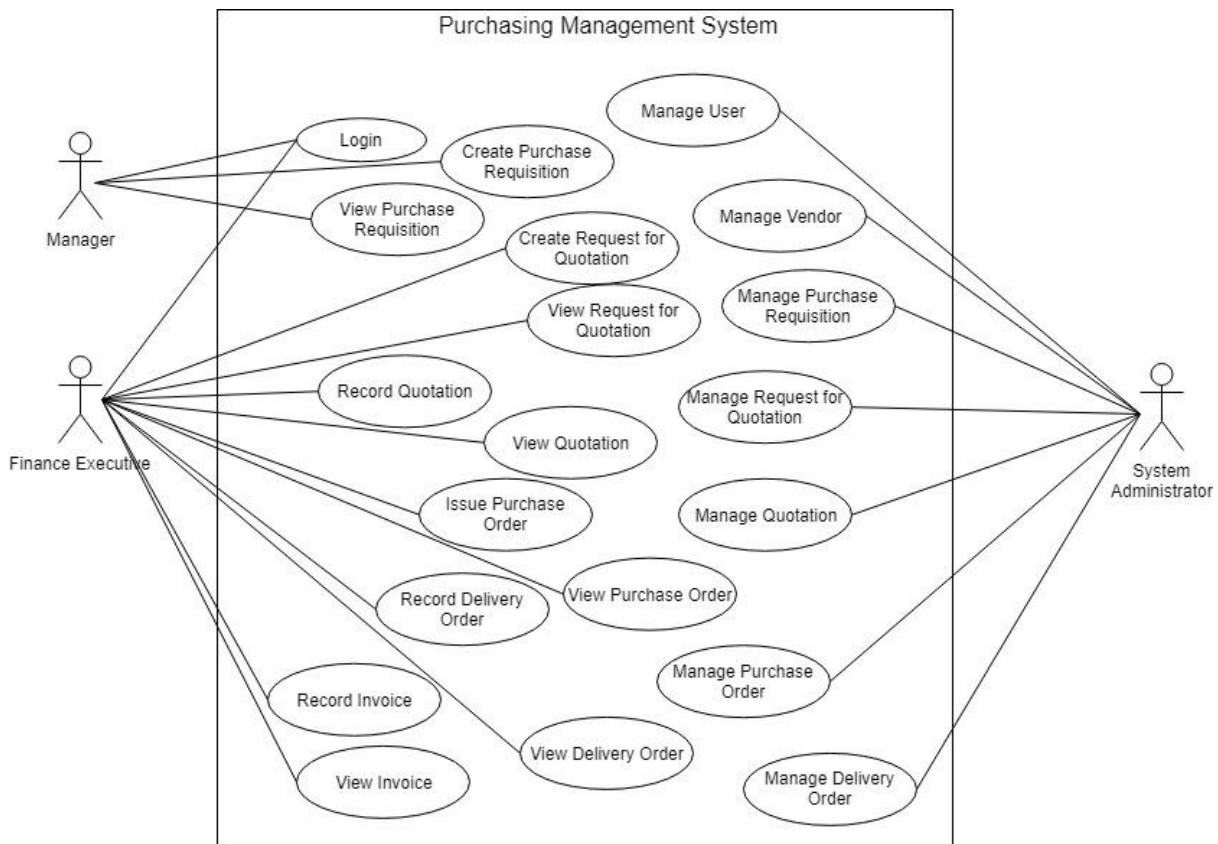
Figure 1.4: Purchasing Management System Use Case Diagram

Figure 1.4.1 above showed the Use Case Diagram for the Purchasing System. This diagram consists of three actors which are the Manager, Finance Executor and the System Administrator. Each of the

actors have the specific features that will be accessible through the system. The Manager will be able to access the Login, Create Purchase Requisition and View Purchase Requisition features for the Purchasing System. Login is required for the manager enters into the system, and then the Manager will be able to Create a Purchase Requisition. After the manager confirm the purchase requisition, the manager will have the option to view the purchase requisition to have a summary page on the previous submission.

Another actor from the use case diagram is the Finance Executive, he/she will have to access the login page first, then the finance executive would create request for quotation. After filling the form, the finance manager would confirm and prompt to use the view request for quotation. After filling the quotation, the finance manager will prompt to record quotation and confirms all the details. After confirming, the finance manager will be able to view the recorded quotation. The recorded quotation will allow the finance manager to issue a purchase order in the system and view it. Next, a record delivery form will be issued and reviewed for further reference. Finally, a record invoice will be created as the last step in the management system to be used as a billing towards the company.

The final actor which is the system administrator. It acts the system administrator would manage the user, vendor, purchase requisition, request for quotation, quotation, purchase order, and the delivery order.

Actors	Modules
Manager	• Login • View Purchase Requisition • Create Purchase Requisition
Finance Executive	• Login • Create Request for Quotation • View Request for Quotation • Record Quotation • View Quotation • Issue Purchase Order • View Purchase Order • Record Delivery Order • View Delivery Order • Record Invoice • View Invoice
System Administrator	Editing the database • Manage User • Manage Vendor • Manage Purchase Requisition • Manage Request for Quotation • Manage Quotation • Manage Purchase Order • Manage Delivery Order

Table 1.4: Modules accessible by each Actor

2 Data Design

2.1 Data Dictionary

Table Name	Attribute Name	Data Type	Field Length	Primary Key (PK) & Foreign Key (FK)	FK Reference table	Description
APP (Item)	Item id	Varchar	5	PK		Indicate a unique id for a particular item.
	Item Name	Varchar	Unlimited			Indicate name of item.
	Item Description	Varchar	Unlimited			Indicate the characteristic of item.
APP(Person)	User Id	Varchar	Unlimited			Indicate a unique id for login the purchase system.
	Person Id	Varchar	4	PK		Indicate a unique id for an individual.
	Person Name	Varchar	Unlimited			Indicate name of individual
	Person Address	Varchar	Unlimited			Indicate the address and name of place that stayed
	Person Phone Number	Varchar	Unlimited			Indicate the contact number
	Person Role	Varchar	Unlimited			Indicate the role of an individual in the organization

APP(Vendor)	Vendor Id	Varchar	5	PK		Indicate a unique id for vendor.
	Vendor Name	Varchar	Unlimited			Indicate name of vendor
	Vendor Phone Number	Varchar	Unlimited			Indicate the contact number of vendors
	Vendor Address	Varchar	Unlimited			Indicate the address and name of place that stayed
	Vendor Email	Varchar	Unlimited			Indicate the email address of vendor
Delivery (Delivery Order Items)	Delivery Order Id	Varchar	10	PK		Indicate a unique id for delivery order.
	Item Id	Varchar	5	FK	Item	Indicate a unique id for item.
	Quantity	Integer				Indicate the number of deliveries made.
	Unit Price	Integer				Indicate the price per unit item
	Total Price	Integer				Indicate the total price of item.
	Ref Id	Varchar	Unlimited			Indicate the reference id for delivery order.
Delivery (Delivery Order)	Delivery Order Id	Varchar	10	PK		Indicate a unique id for delivery order.
	Shopping Instructions	Varchar	Unlimited			Indicate the information for shipping details.
	Time Created	TimeStamp	Timestamp			Indicate the time and date to deliver.
	Description	Varchar	Unlimited			Indicate additional remark of the delivery.
	Total Price	Integer				Indicate the total price of delivery order.
	Person id	Varchar	4	FK	Person	Indicate a unique id for individual.

	Vendor id	Varchar	5	FK	Vendor	Indicate a unique id for vendor.
	Purchase Order id	Varchar	7	FK	Purchase Order	Indicate a unique id for purchase order.
Invoice (Invoice Item)	Invoice Id	Varchar	10	PK		Indicate a unique id for invoice
	Item Id	Varchar	5	FK	Item	Indicate a unique id for item
	Quantity	Integer				Indicate the number of items
	Unit Price	Integer				Indicate the price of one item
	Total Price	Integer				Indicate the total price
	Ref Id	Varchar	Unlimited			Indicate a unique id for reference.
Invoice (Invoices)	Invoice Id	Varchar	10	PK		Indicate a unique id for invoice
	Time Created	TimeStamp				Indicate the date and time for invoice to be made.
	Description	Varchar	Unlimited			Indicate the information of invoice
	Total Price	Integer				Indicate the total price of invoice
	Invoice Status	Varchar	Unlimited			Indicate the status of invoice
	Purchase Order Id	Varchar	7	FK	Purchase Order	Indicate a unique id for purchase order.
	Person Id	Varchar	4	FK	Person	Indicate a unique id for individual.
	Vendor Id	Varchar	5	FK	Vendor	Indicate a unique id for vendor.

Purchase Order (Purchase Order Item)	Purchase Order Id	Varchar	7	PK		Indicate a unique id for purchase order.
	Item Id	Varchar	5	FK	Item	Indicate a unique id for item
	Quantity	Integer				Indicate the number of items purchased.
	Unit Price	Integer				Indicate the price of one item.
	Total Price	Integer				Indicate the total price of purchase order
	Ref Id	Varchar	Unlimited			Indicate a unique id for purchase order.
Purchase (Purchase Order)	Purchase Order Id	Varchar	7	PK		Indicate a unique id for purchase order
	Shipping Instructions	Varchar	Unlimited			Indicate the information for deliver the order
	Time Created	TimeStamp				Indicate the time and date to made purchase order.
	Description	Varchar	Unlimited			Indicate the additional information to made purchase order.
	Total Price	Integer				Indicate the total price of purchase order.
	Person Id	Varchar	4			Indicate a unique id for individual.
	Quotation Id	Varchar	10	FK	Quotation	Indicate a unique id for quotation.
	Vendor Id	Varchar	5	FK	Vendor	Indicate a unique id for vendor.
Purchase Requisition (Purchase	PR id	Varchar	10	PK		Indicate a unique id for purchase requisition
	Item id	Varchar	5	FK	Item	Indicate a unique id for item.

Requisition items)	Unit Price	Integer				Indicate price of one item.
	Quantity	Integer				Indicate the number of items made
	Ref Id	Varchar				Indicate a unique id for reference.
Purchase Requisition	PR Id	Varchar	10	PK		Indicate a unique id for purchase requisition.
	Description	Varchar				Indicate the additional information for purchase requisition.
	Time Created	TimeStamp				Indicate the time and date of purchase requisition made.
	Total Price	Integer				Indicate the price of purchase requisition.
	Status	Varchar				Indicate the status of purchase requisition.
	Person id	Varchar	4	FK	Person	Indicate a unique id for individual.
Quotation (Quotation Items)	Quotation id	Varchar	10	PK		Indicate a unique id for quotation
	Item id	Varchar	5	FK	Item	Indicate a unique id for item
	Quantity	Integer				Indicate the number of items in the quotation
	Unit Price	Integer				Indicate the price of item per unit
	Total Price	Integer				Indicate the total price
	Ref Id	Varchar				Indicate a unique id for reference.
Quotation (Quotations)	Quotation Id	Varchar	10	PK		Indicate a unique id for quotation
	Time Created	Timestamp				Timestamp

	Description	Varchar				Indicate additional information for quotation made.
	Total Price	Integer				Indicate total price of quotation
	Person Id	Varchar	4	FK	Person	Indicate a unique id for individual
	Vendor Id	Varchar	5	FK	Vendor	Indicate a unique id for vendor
	Request for Quotation Id	Varchar	10	FK	Request for Quotation	Indicate a unique id for request for quotation.
Request for Quotation (Request for Quotation item)	Request for quotation Id	Varchar	10	PK		Indicate a unique id for request for quotation.
	Item Id	Varchar	5	FK	Item	Indicate a unique id for item.
	Quantity	Integer				Indicate the number of items
	Unit Price	Integer				Indicate the price of one item.
	Total Price	Integer				Indicate the total price
	Ref Id	Varchar				Indicate a unique id for reference
Request for Quotation	Request for quotation id	Varchar	10	PK		Indicate a unique id for request for quotation.
	Time Created	Timestamp				Indicate the time and date for request for quotation made.
	Description	Varchar				Indicate additional information for request for quotation.
	Total Price	Integer				Indicate the total price
	Purchase Requisition Id	Varchar	10	FK	Purchase Requisition	Indicate a unique id for purchase of requisition.
	Person Id	Varchar	4	FK	Person	Indicate a unique id for individual

	Vendor Id	Varchar	5	FK	Vendor	Indicate a unique id for vendor.

Table 2.1 Data Dictionary for the Purchasing Management System

2.2 Class Diagram
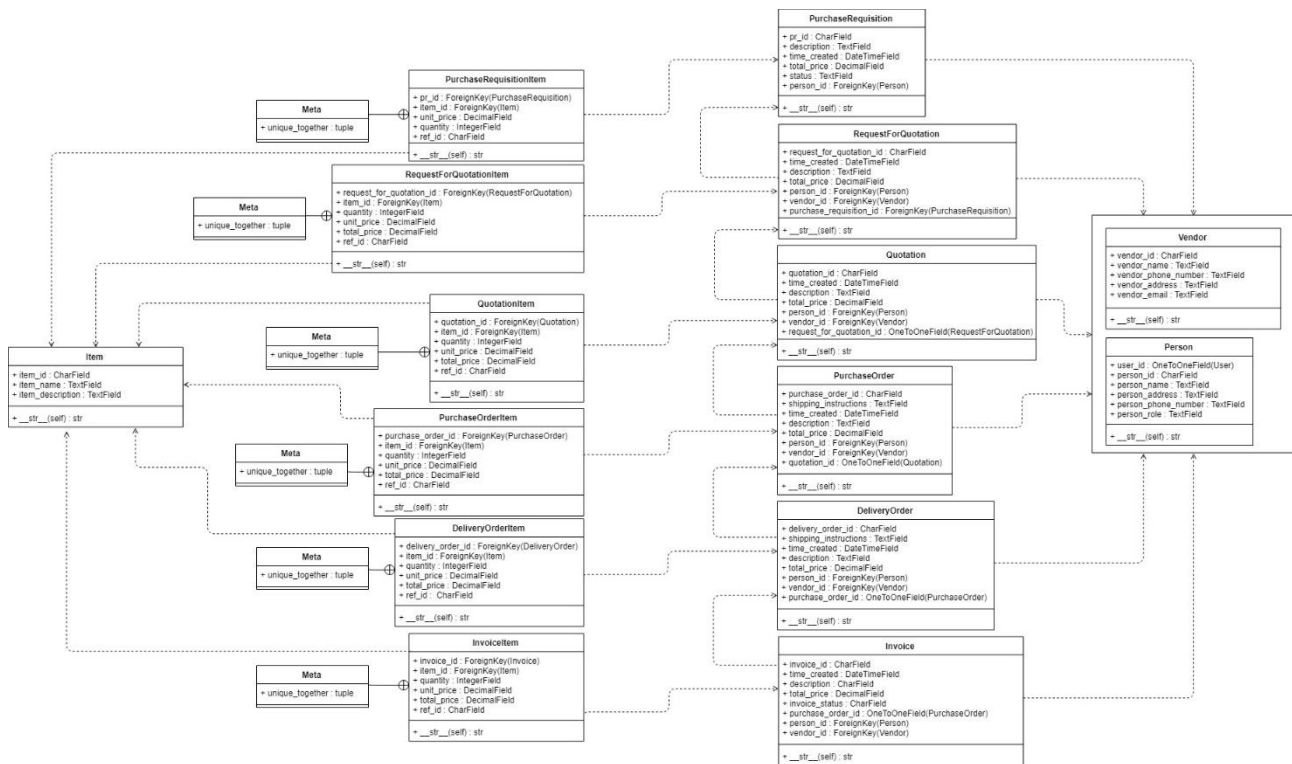
Figure 2.2: Purchasing Management System Class Diagram

Figure 2.2 above shows the overall class diagram of Purchase Management System. The classes representing the modules of the system, from Purchase Requisition module to Invoice module, must be dependent of each other in order to implement the system as a whole via foreign keys. RequestForQuotation class depends on attributes of PurchaseRequisition class, Quotation class depends on attributes of RequestForQuotation class, PurchaseOrder class depends on attributes of Quotation class, as well as DeliveryOrder class and Invoice class depends on attributes of PurchaseOrder class. These classes also depend on attributes of both Person and Vendor classes. PurchaseRequistionItem, RequestForQuotationItem, QuotationItem, PurchaseOrderItem, DeliveryOrderItem, and InvoiceItem classes depend on attributes of Item class.

2.3 Sample Data

Table 2.3 below shows the sample data that are used to implement the Purchasing Management System.

Person ID	4075
Vendor ID	V0001
Purchase Requisition ID	PR46991772
Item ID	L0002
Item Name	Lenovo IdeaPad Desktop
Description	I7,16GB Ram

Quantity	100
Price Per Unit	4000
Request For Quotation ID	RFQ2389233
Record Quotation ID	QUO5381995
Issue Purchase Order ID	PO1002
Delivery Order ID	PO71631363
Invoice ID	INV2654874
Purchase Order ID	2654874

Table 2.3: Sample Data of Purchasing Management System

3 Software Architecture

3.1 Software Architecture Diagram
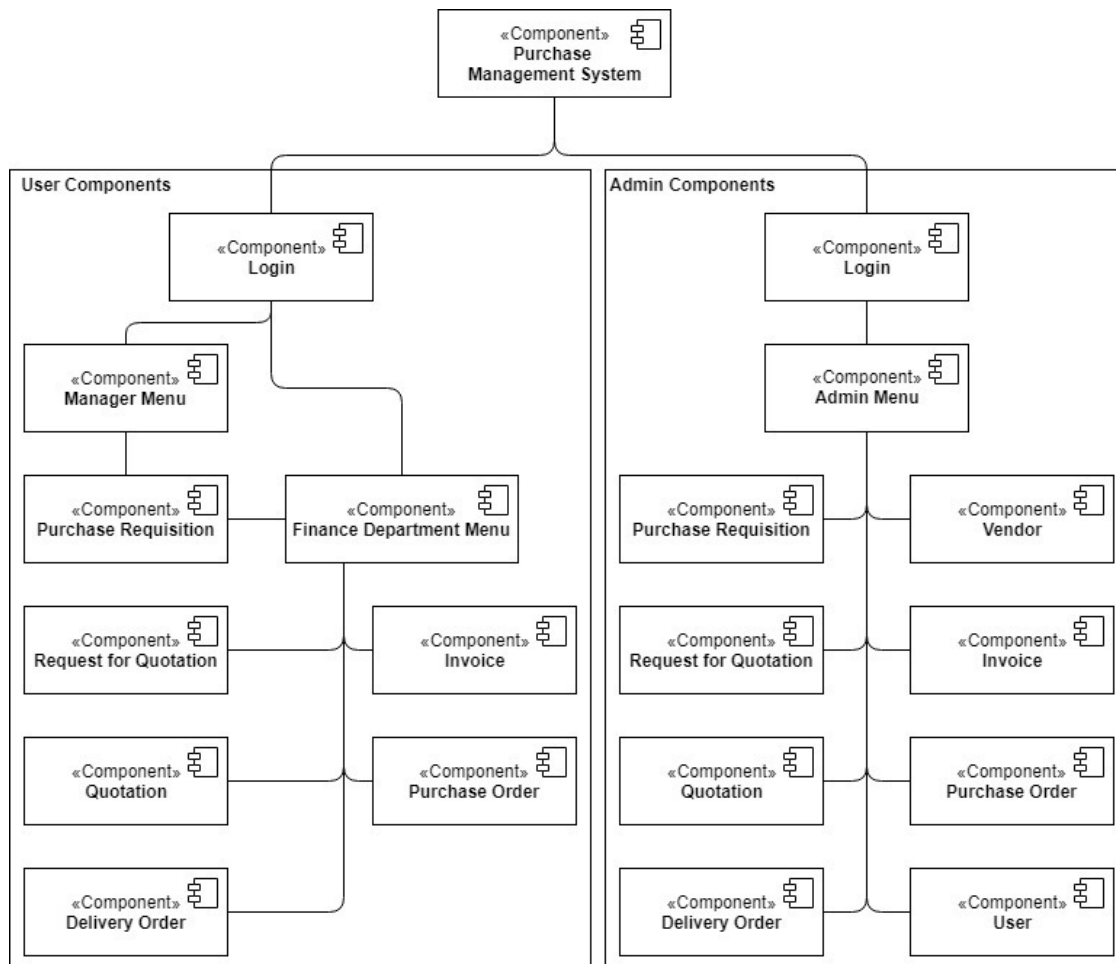
Figure 3.1 Purchase Management System Software Architecture Diagram

The architecture diagram of purchasing system is dividing into two part which are user and admin component. In the user components, there are seven components to be handle which are login, purchase requisition, request for quotation, quotation, delivery order, invoice and purchase order.

Meanwhile for admin component, there are nine components to be involved which are login, purchase requisition, request for quotation, quotation, delivery order, vendor, invoice, purchase order and also user detail. Therefore, admin component has provided user the authorization to edit the data that stored in the system compare to user component. Admin Component can be function as database for purchasing system.

3.2 Software Modules

The following table (Table 3.2) contains the list of modules of the purchase system, separated by its maintenance personnel responsible.

Module	Description	Assigned To
Login	To allow user to log in with his/her existing account.	Luqman Saidi
Create Purchase Requisition	To allow user to create purchase requisition to list out items for purchases.	Hamidi
View Purchase Requisition	To allow user to view a list of purchase requisition.	Hamidi
Create Request for Quotation	To allow user to create request for quotation to be sent to vendors.	Chin Wei
View Request for Quotation	To allow user to view list of requests of quotation and detailed information of a selected request of quotation.	Chin Wei
Record Quotation	To allow user to record quotation given by vendors	Chin Wei
View Quotation	To allow user to view list of quotations and detailed information of a selected quotation.	Chin Wei
Issue Purchase Order	To allow user to issue purchase order for items to be sent to vendors.	Hamidi
View Purchase Order	To allow user to view list of purchase order and detailed information of a selected purchase order.	Hamidi
Record Delivery Order	To allow user to record delivery order for items to be delivered towards vendors	Luqman Saidi
View Delivery Order	To allow user to view list of delivery order and detailed information of a selected delivery order	Luqman Saidi
Record Invoice	To allow user to record invoice for as a reference and a billing to the purchaser	Luqman C.A
View Invoice	To allow user to view Invoice and detailed information of a selected delivery order.	Luqman C.A

Table 3.2: Software Modules and Their Respective Maintenance Personnel Responsible

4 Software Modules

4.1 Module 1: Log in

4.1.1 Module 1 Screens

The following figures shows the sequence of screen login module. It starts off with user being directed towards the Homepage once accessing the system. The Log In tab will be available to be clicked upon on the top right corner.
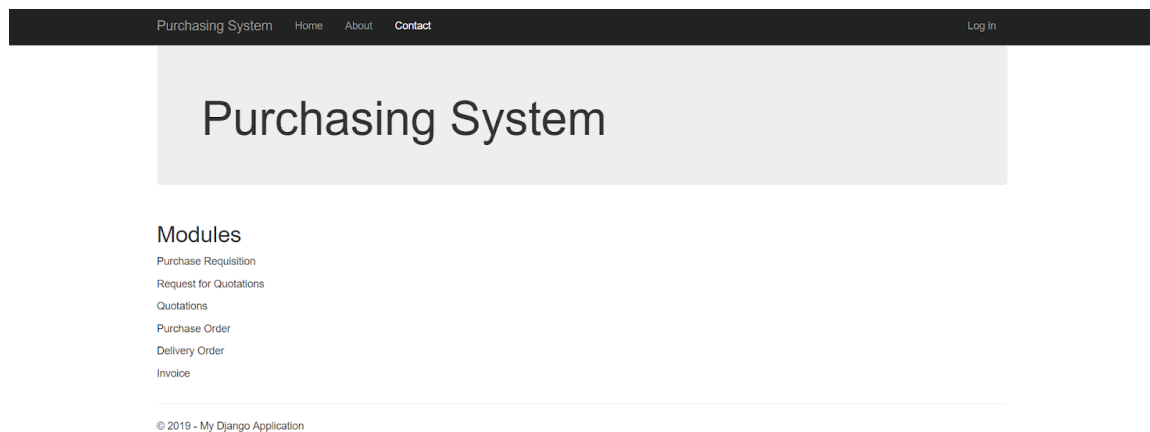
Figure 4.1.1a: Homepage

This figure shows the Log in form page where the users are required to fill the necessary information which is a correct User name and Password to be able to access the features in the system.
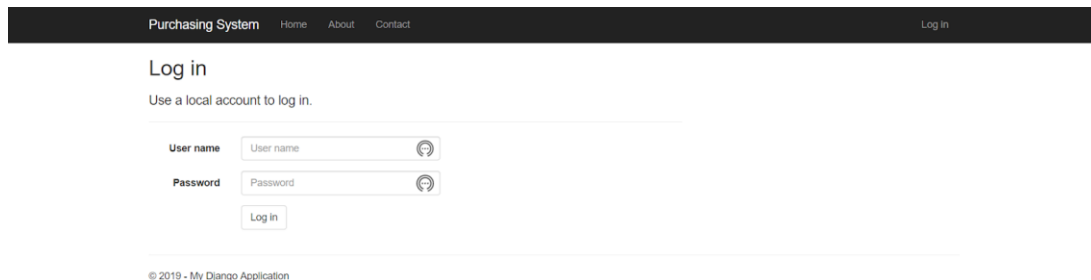
Figure 4.1.1b: Login form page

4.1.2 Module 1 Diagrams
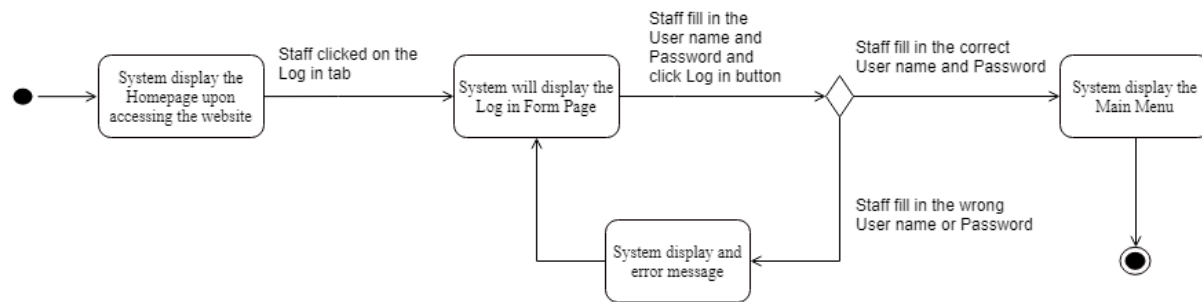
Figure 4.1.2: Login Module Activity Diagram

Figure 4.1.2 above shows the activity diagram for Login module. The activity starts with the system displaying the homepage upon accessing the website. After the user click on the Login tab, they will be directed to a login form page where they are required to fill the necessary information which is username and password to gain access into the system. If the user entered a wrong input, the system will display an error message, "Please enter a correct user name and password", which then they are required to input the information again. If the user entered the correct username and password, the system will display the Main menu of the Purchasing System.

4.1.3 Module 1 Files

The following table (Table 4.2.3) contains the list of main files of the module.

File Name	Extensions
admin	.py
models	.py
tests	.py
views	.py

Table 4.2.3: Main Files of Login Module

4.1.4 Module 1 Report

There are no error or issue found in this module.

4.2 Module 2: Create Purchase Requisition Module

4.2.1 Module 2 Screens

The following images below are sequence of screens where Create Purchase Requisition is implemented.
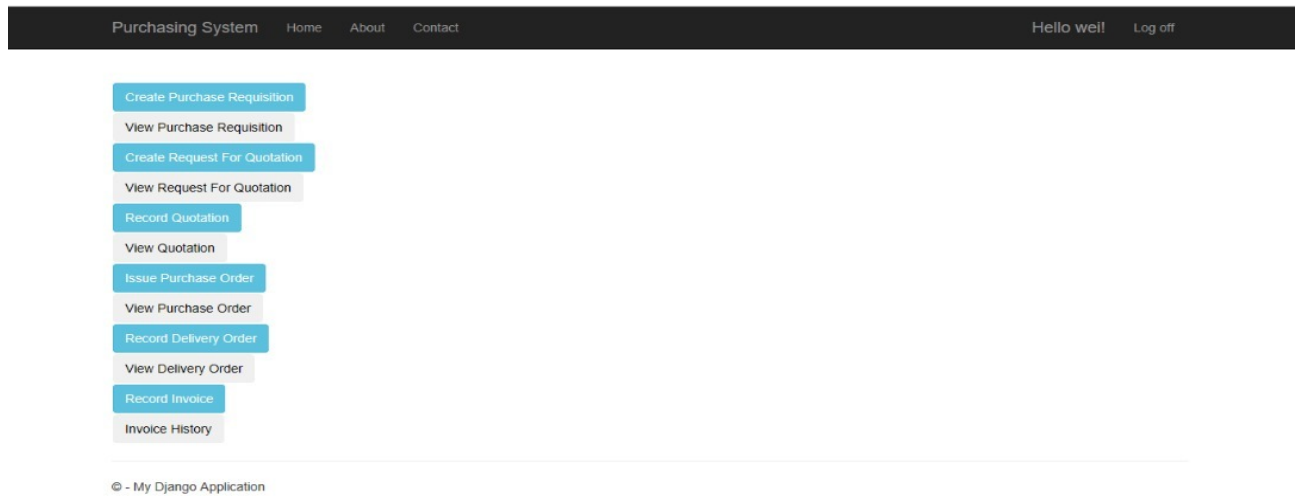
Figure 4.2.1a: Main Menu Page

Figure 4.2.1b: Purchase Requisition Form Page

Figure 4.2.1c: Purchase Requisition Confirmation Page

Figure 4.2.1d: Purchase Requisition Summary Page

4.2.2 Module 2 Activity Diagrams
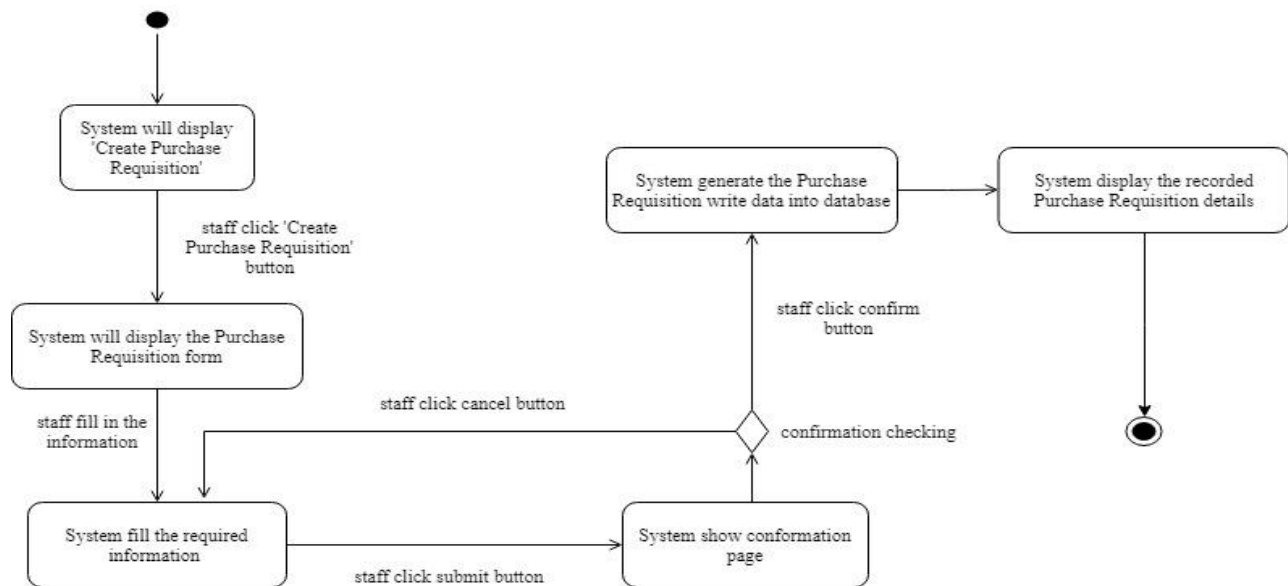
Figure 4.2.2: Create Purchase Requisition Activity Diagram

Figure 4.2.2 above showed the activity diagram for Create Purchase Activity module. The activity starts with the Main Menu page where the system will display 'Create Purchase Requisition' button. After the user clicked the button, the user will be navigated to the Purchase Requisition Form page, where the user is required to fill in the relevant information. After the system has received the inputs by the user, the user will be directed to the Confirmation page, where the user will have a choice between to confirm the submission or cancel it. If the user chooses to cancel, the user will be redirected back to the Purchase Requisition Form page for any correction or modification. If the user chooses to submit, the user will be navigated to the Purchase Requisition Summary page for references before returning to the Main Menu page.

4.2.3 Module 2 Files

The following table (Table 4.2.3) contains the list of main files of the module.

File Name	Extensions
admin	.py
models	.py
tests	.py
views	.py

Table 4.2.3: Main Files of Create Purchase Requisition Module

4.2.4 Module 2 Report

The following table (Table 4.2.4) contains the list of errors/enhancements/adaptations found alongside with actions that will be taken.

No	Errors/ Enhancements/Adaptation	Action Taken
1	Key in the wrong input will direct the user to an error page.	Instead of navigating the user to the error page, the user should be notified of the mistakes they need. Implement exception handling method within the function in views.py
2	Add Item Button cannot function	Enhance the code itself to add function in Add Item component.
3	Remove Item Button cannot function	Enhance the code itself to remove function in Remove Item component.

Table 4.2.4: Errors/Enhancements/Adaptation within Create Purchase Requisition Module

4.3 Module 3: View Purchase Requisition Module

4.3.1 Module 3 Screens

The following images below are sequence of screens where View Purchase Requisition is implemented.

Figure 4.3.1a: Main Menu Page

Figure 4.3.1b: View Purchase Requisition Page

Figure 4.3.1c: Purchase Requisition Summary Page

4.3.2 Module 3 Activity Diagrams
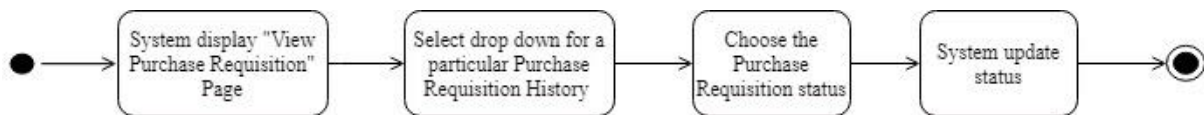
Figure 4.3.2: View Purchase Requisition Activity Diagram

Figure 4.3.2 above showed the activity diagram for View Purchase Activity module. The activity starts with the Main Menu page where the system will display View Purchase Requisition' button. After the user clicked the button, the user will be navigated to the View Purchase Requisition page, where the user can browse through a list of several purchase requisitions that have been submitted beforehand. The user can click on any Purchase Requisition ID, or the user can click the 'Back' button to navigate back to the Main Menu page. If the user chooses one Purchase Requisition ID, the user will be navigated to the Purchase Requisition Summary page for references.

4.3.3 Module 3 Files

The following table (Table 4.3.3) contains the list of main files of the module.

File Name	Extensions
admin	.py
models	.py
tests	.py
views	.py

Table 4.3.3: Main Files of View Purchase Requisition Module

4.3.4 Module 3 Report

The following table (Table 4.3.4) contains the list of errors/enhancements/adaptations found alongside with actions that will be taken.

No	Errors/ Enhancements/Adaptation	Action Taken
1	No error detected	

Table 4.3.4: Errors/Enhancements/Adaptation within Create Purchase Requisition Module

4.4 Module 4: Create Request For Quotation

4.4.1 Module 4 Screen

The following images below are sequence of screens where Create Request for Quotation is implemented.

Figure 4.4.1a: Main Page

Figure 4.4.1b: Create Request for Quotation Page

Figure 4.4.1c: Confirmation for Create Request for Quotation Page

4.4.2 Module 4 Activity Diagrams

Figure 4.4.2: Create Request for Quotation Activity Diagram

In the illustration via figure 4.4.2, the user will be asked to enter purchase requisition id and then press find. If the id entered is valid, the system will proceed into process of generating all details such as request for quotation id, purchase requisition id and also staff id. Otherwise, the user must

re-enter the correct purchase requisition id if invalid input is detected. After that, user must enter valid vendor id. User can select whether want to input some description. At last, the user will press submit button to create request for quotation.

4.4.3 Module 4 Files

The following table (Table 4.3.3) contains the list of main files of the module.

File Name	Extensions
__init__	.py
admin	.py
apps	.py
models	.py
tests	.py
view	.py

Table 4.3.3: Main Files of Create Request for Quotation Module

4.4.4 Module 3 Report

The following table (Table 4.4.4) contains the list of errors/enhancements/adaptations found alongside with actions that will be taken.

No	Errors/ Enhancements/Adaptation	Action Taken
1	There are three errors caused simultaneously during the submit button is pressed during creating request for quotation. • PrettyTable() method error (Figure 4.4.4a). In this case, the PrettyTable method does not imported into view.py file. • Integrity error is raised after PrettyTable is raised. In this case, exception is raised when the relational integrity of the database is affected, such as a foreign key check fails, duplicate key, etc. • ConnectionRefused Error is raised due to connection refused during sending	To solve the PrettyTable method exception(Figure 4.4.4c) • Install PrettyTable package in python 3.6. • Go to RequestForQuotation Folder and look into view.py file. • In the view.py file, uncomment the line "*from prettytable import PrettyTable*" To solve the Integrity error and ConnectionRefused error (Figure 4.4.4d) • Go to RequestForQuotation Folder and look into view.py file.

		the email from person to vendor after request for quotation is created.	• In the view.py file, add the line "*from django.db import IntegrityError*". • In the same file, go to "*requestforquotationdetails*" method to try and exception both errors.

Table 4.4.4: Errors/Enhancements/Adaptation within Create Request for Quotation Module

Figure 4.4.4a: PrettyTable Error

Figure 4.4.4b: ConnectionRefused Error
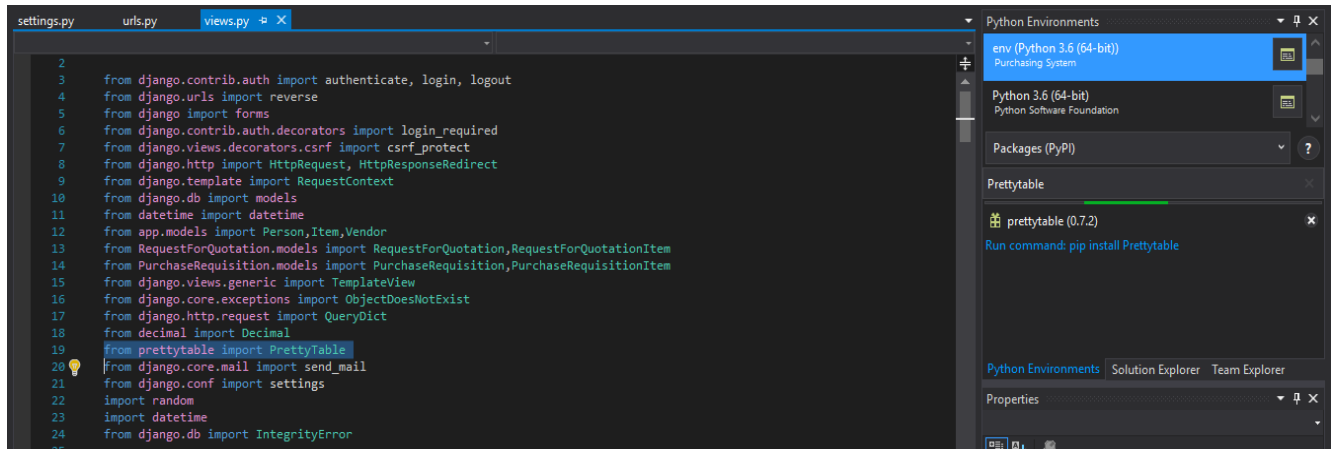
Figure 4.4.4c: Install PrettyTable Package and Import the Package into Code.
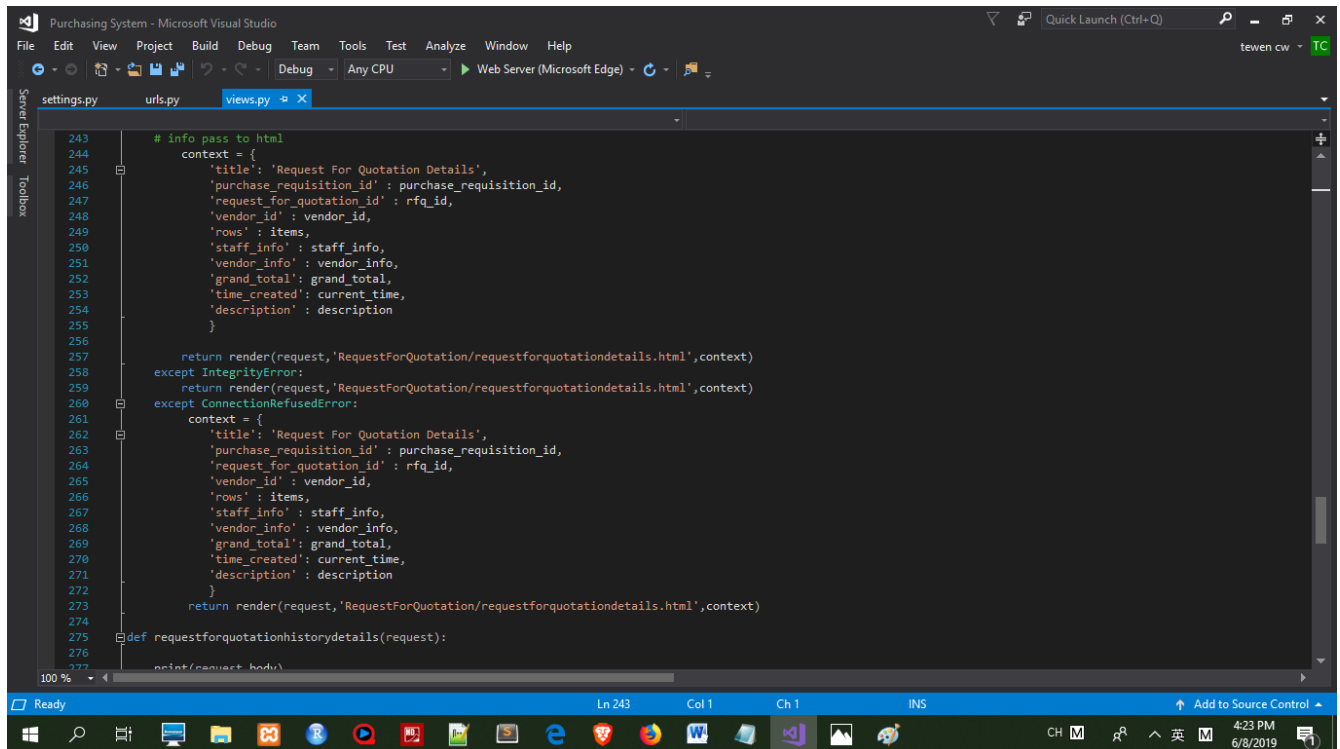
Figure 4.4.4d: Try and Exception Integrity and ConnectionRefused Error

4.5 Module 5: View Request For Quotation

4.5.1 Module 5: Screen

The following images below are sequence of screens where View Request for Quotation is implemented.
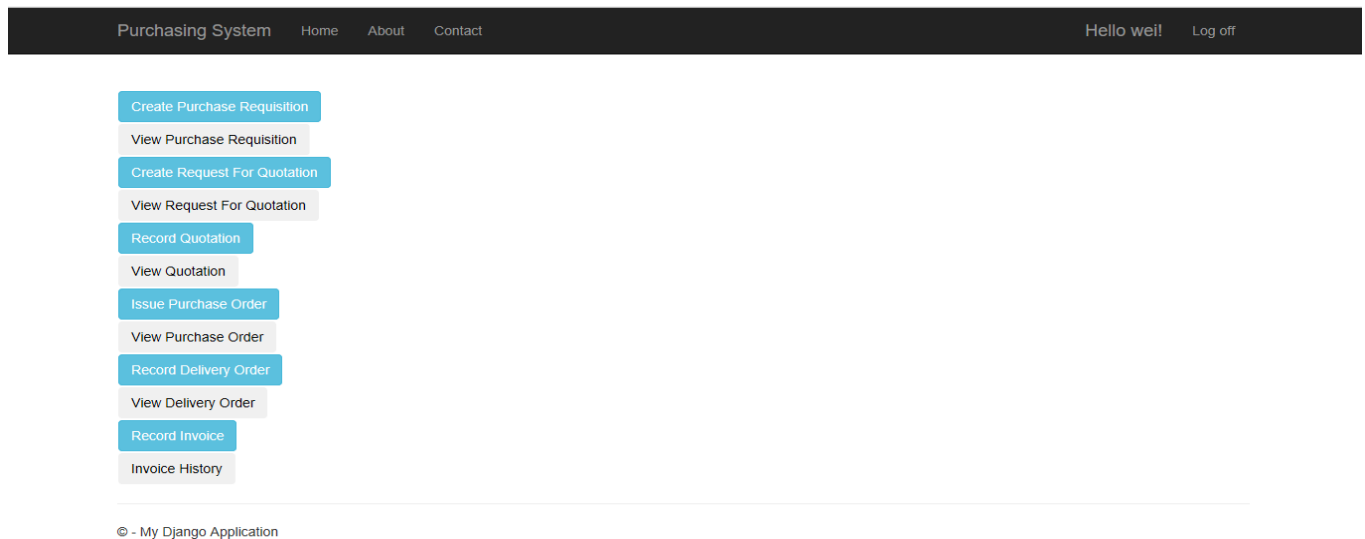
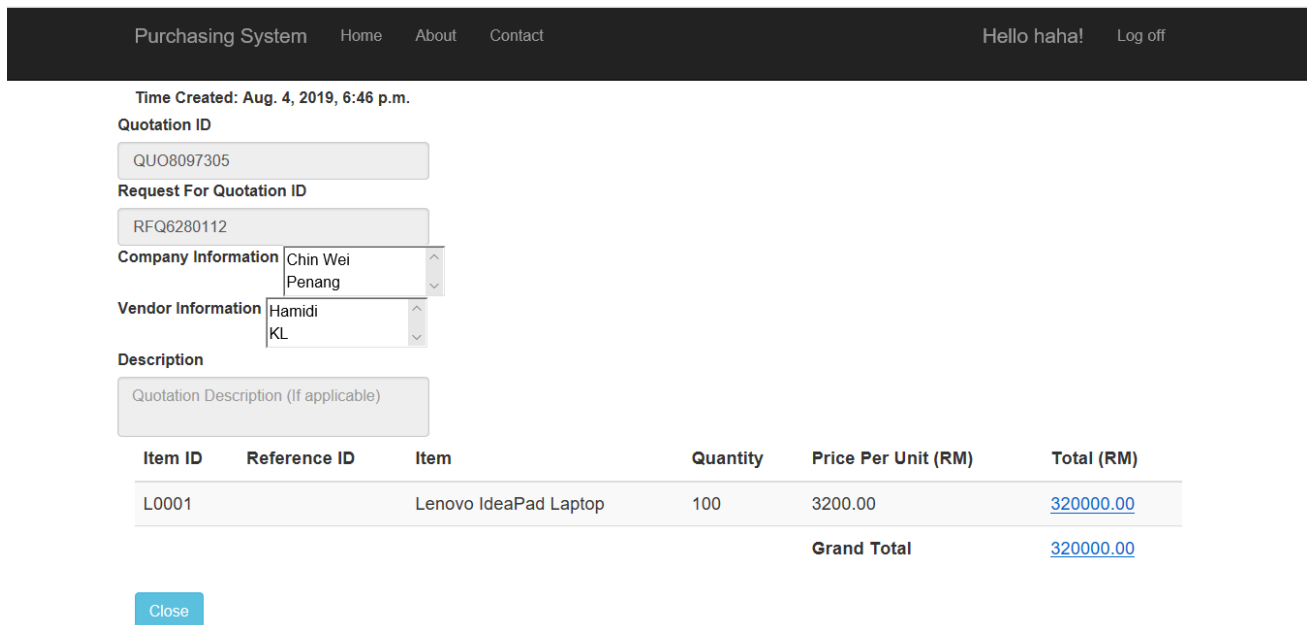**Figure 4.5.1a: Main Page**
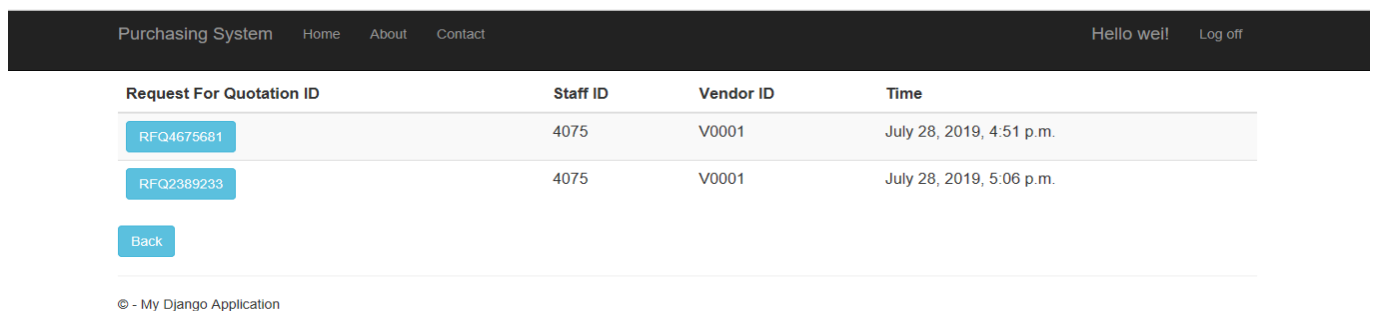
Figure 4.5.1b: View Request For Quotation

4.5.2 Module 5 Activity Diagrams
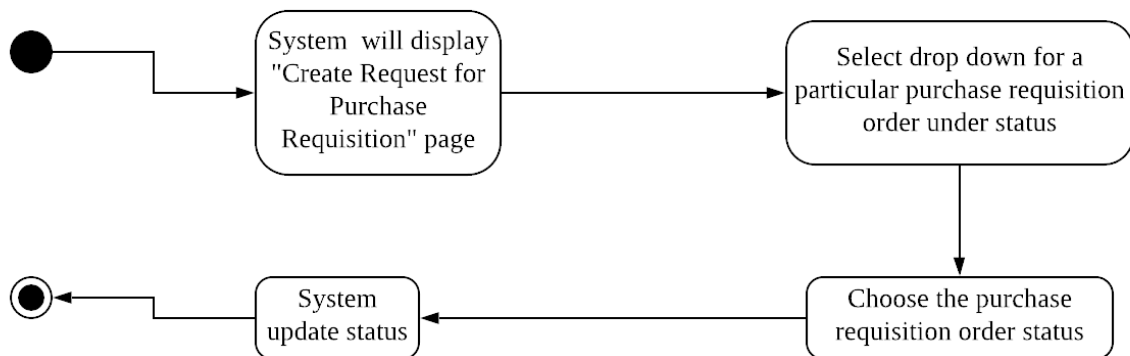
Figure 4.5.2: View Request for Quotation Activity Diagram

In the illustration via figure 4.5.2, the user will enter view page for request for quotation. User can select drop down for a particular request for quotation. After selection, the system will update and display the status for user.

4.5.3 Module 5 Files

The following table (Table 4.5.3) contains the list of main files of the module.

File Name	Extensions
__init__	.py
admin	.py
apps	.py
models	.py
tests	.py
view	.py

Table 4.5.3: Main Files of View Request For Quotation

4.5.4 Module 5 Report

The following table (Table 4.5.4) contains the list of errors/enhancements/adaptations found alongside with actions that will be taken.

No	Errors/ Enhancements/Adaptation	Action Taken

1	Error Occur after select to view the request for quotation detail. The error knows as Page 404 error that caused by system failed to located the path of the url pattern request.	• To solve it the page 404 error, the user must check the root of url of purchasing system. In this case, user need to proceed to the settings.py under folder Purchasing System to check the url stated in the line that show "*ROOT_URLCONF*". • Next, user must go to view.py of Request For Quotation to try and exception the error via importing HTTP response and HTTP 404.

Table 4.5.4: Errors/Enhancements/Adaptation within View Request for Quotation Module

Figure 4.5.4a: Page 404 Error
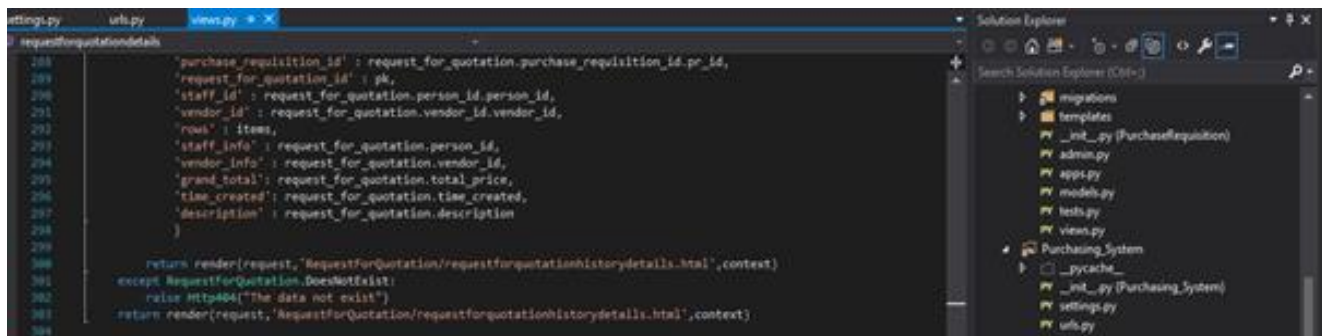
Figure 4.5.4b: Try and Exception the Page 404 Error

4.6 Module 6: Record Quotation

4.6.1 Module 6: Screen

The following images below are sequence of screens where Record Quotation is implemented.
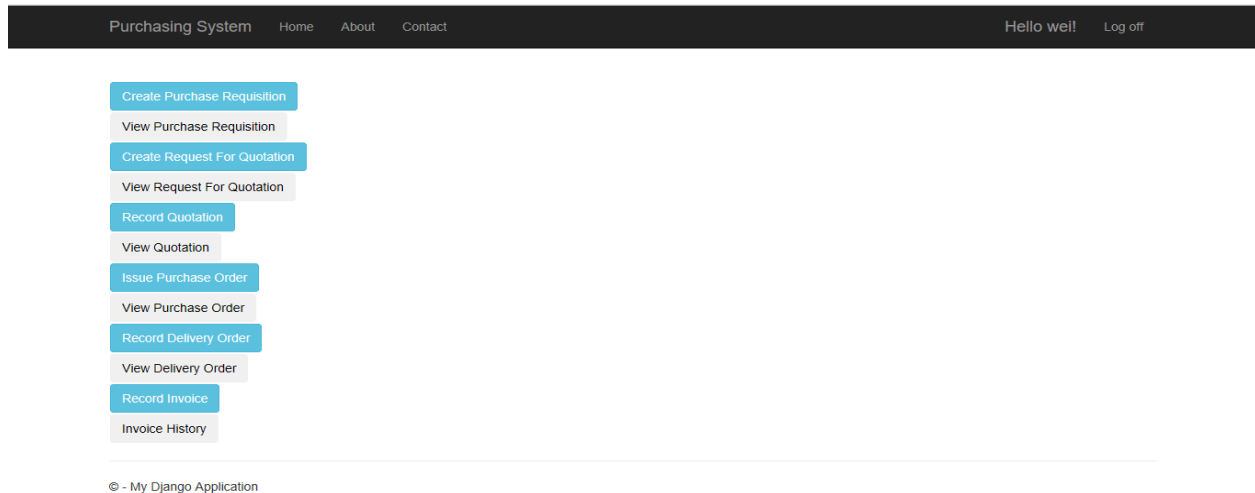
Figure 4.6.1a: Main Page
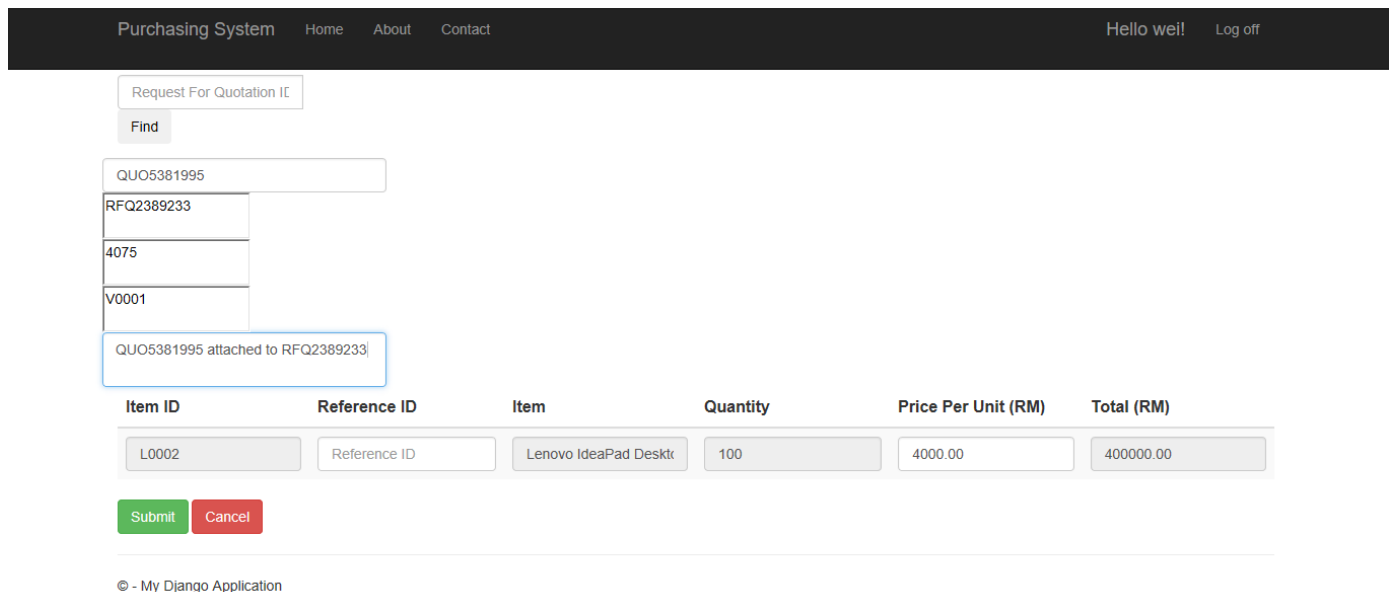
Figure 4.6.1b: Record Quotation Page

Purchasing System   Home   About   Contact   Hello wei!   Log off

Quotation ID

Find

PO1002

QUO5381995

4075

V0001

Deliver to Cyberjaya

PO1002 attached to QUO5381995

Item ID	Item	Quantity	Price Per Unit (RM)	Total (RM)
L0002	Lenovo IdeaPad Desktop CPU	100	4000.00	400000.00

Submit   Cancel

© - My Django Application

Figure 4.6.2c: Submit Record Quotation Page

Purchasing System   Home   About   Contact   Hello wei!   Log off

Quotation ID

QUO5381995

Request For Quotation ID

RFQ2389233

Company Information John
Cyberjaya,Selangor   4075

Vendor Information Jimmy
Penang, Malaysia   V0001

Description

QUO5381995 attached to RFQ2389233

Item ID	Reference ID	Item	Quantity	Price Per Unit (RM)	Total (RM)
L0002	Reference ID	Lenovo IdeaPad Deskto	100	4000.00	400000.00
			Grand Total	400000.00	

Confirm   Cancel

© - My Django Application

Figure 4.6.2d: Confirmation on Record Quotation Page

4.6.2 Module 6 Activity Diagrams
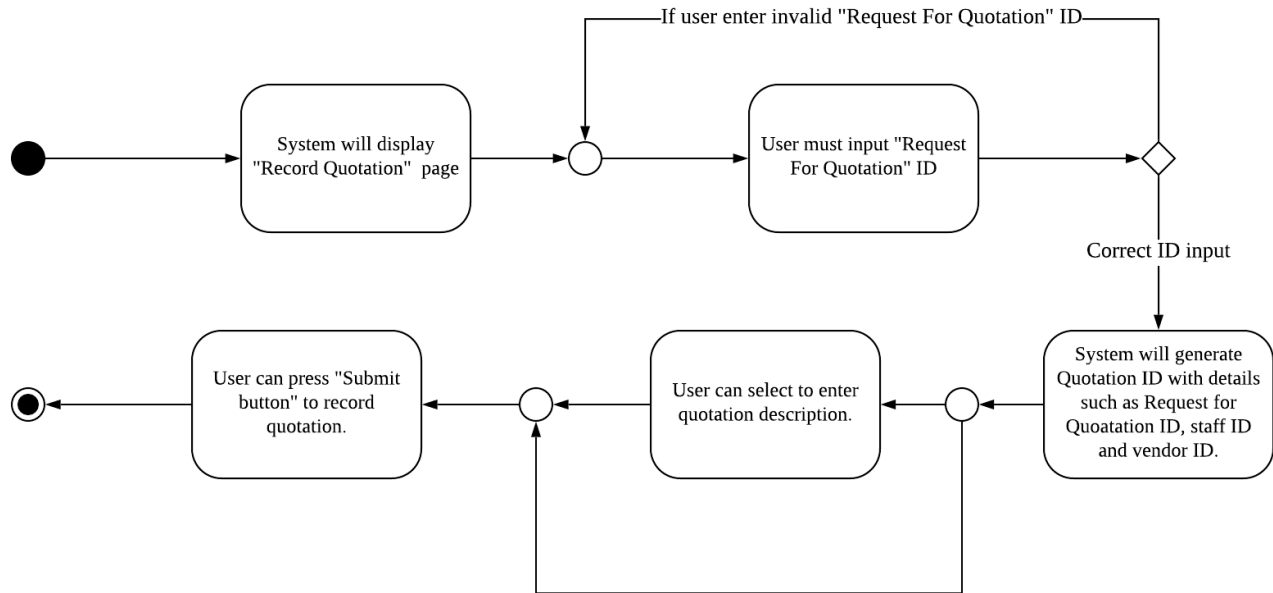
Figure 4.6.2: Record for Quotation Activity Diagram

In the illustration via figure 4.6.2, the user will enter page for record quotation. User must enter request for quotation ID and press "find" button. If invalid request for quotation id is entered, the user must re-enter again. After that, system will generate quotation id together with staff id and vendor id. User can select whether to input some description and then press "submit" button to record quotation.

4.6.3 Module 6 Files

The following table (Table 4.6.3) contains the list of main files of the module.

Folder: Quotation

File Name	Extensions
__init__	.py
admin	.py
apps	.py
models	.py
tests	.py
view	.py

Table 4.6.3: Main Files of View Request For Quotation

4.6.4 Module 6 Report

The following table (Table 4.6.4) contains the list of errors/enhancements/adaptations found alongside with actions that will be taken.
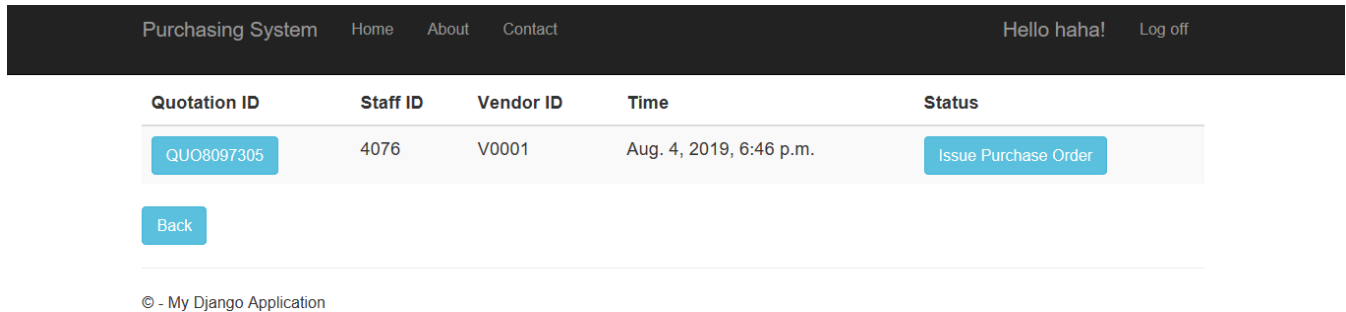
No	Errors/ Enhancements/Adaptation	Action Taken
1	No error detected	

Table 4.6.4: Errors/Enhancements/Adaptation within Record for Quotation Module

4.7 Module 7: View Quotation

4.7.1 Module 7 Screen

The following images below are sequence of screens where View Quotation is implemented.

Figure 4.7.1a: View Quotation Page

Figure 4.7.1b: View Quotation Detail Page

4.7.2 Module 7 Activity Diagram
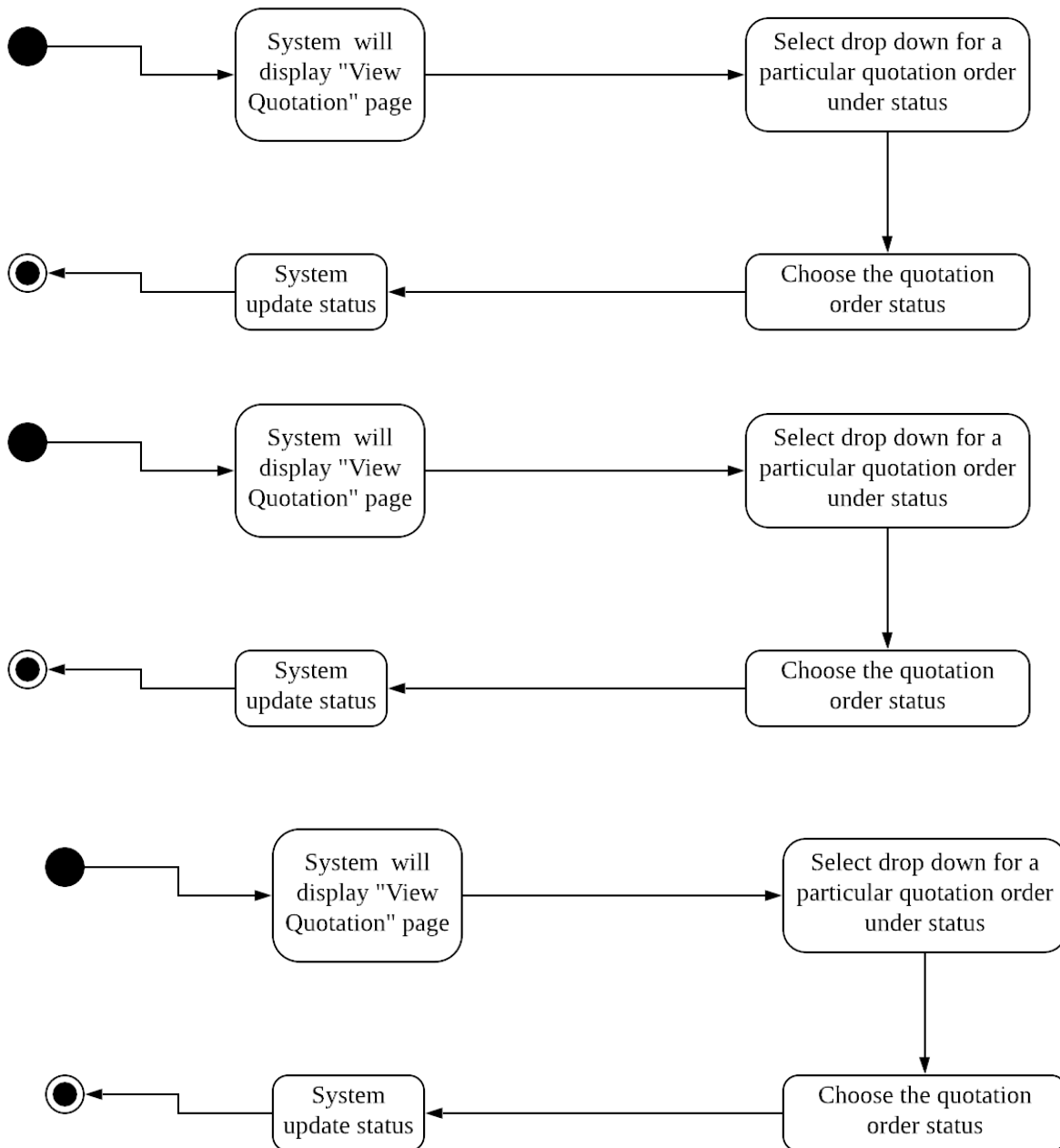
Figure 4.7.2: View Quotation Page Activity Diagram

In the figure 4.7.2, the user will be entered into view quotation page and then asked to select the drop down for a particular quotation order under status. After the selection is made, the system will update and display the quotation detail for user.

4.7.3 Module 7 Files

The following table (Table 4.7.3) contains the list of main files of the module.

Folder: Quotation

File Name	Extensions
__init__	.py
admin	.py
apps	.py
models	.py
tests	.py
view	.py

Table 4.7.3: Main Files of View Quotation

4.7.4 Module 7 Report

The following table (Table 4.7.4) contains the list of errors/enhancements/adaptations found alongside with actions that will be taken.

Table 4.7.4: Errors/Enhancements/Adaptation within View Quotation Module

No	Errors/ Enhancements/Adaptation	Action Taken
1	Error is detected when issue purchase order button is pressed. The error known as MultiValueDictKeyError where it is caused via the system failed to access to 'quo_id' key in the dictionary. (Figure 4.7.4a)	Try and except the error in the method named *quotationhistorydetails* in view.py under Quotation folder. (Figure 4.7.4b) The solution is intended to direct user into issue purchase order when the button is pressed in view quotation page.
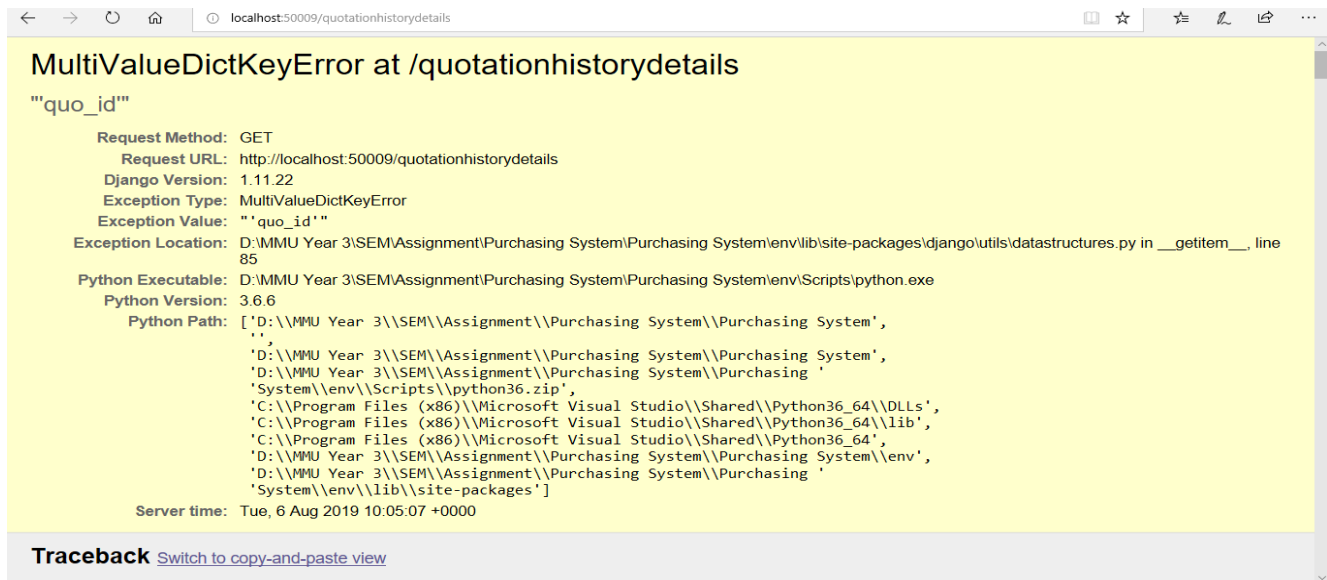
Figure 4.7.4a: Error found when Issue Purchase Order Button is pressed.
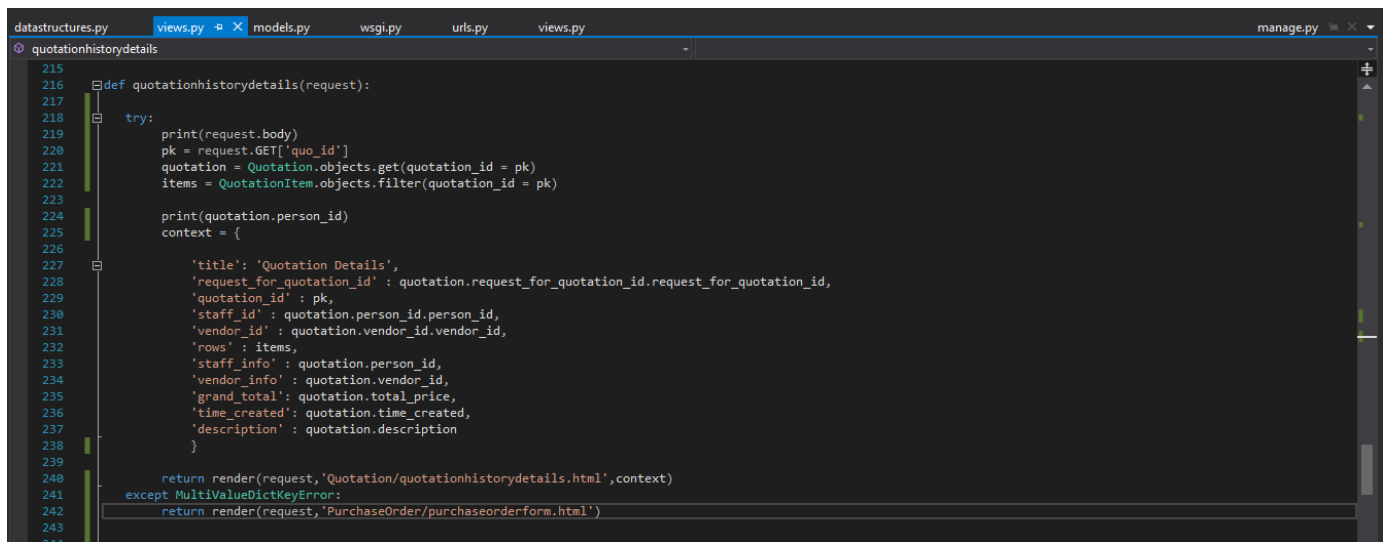
Figure 4.7.4b: Try and Exception MultiValueDictKeyError.

4.8   Module 8: Issue Purchase Order Module

4.8.1   Module 8 Screens

The following figures showed sequence of screens where Issue Purchase Order module has been implemented.

Figure 4.8.1a: Main Menu Page

Figure 4.8.1b: Purchase Order Form Page

Figure 4.8.1c: Purchase Order Confirmation Page

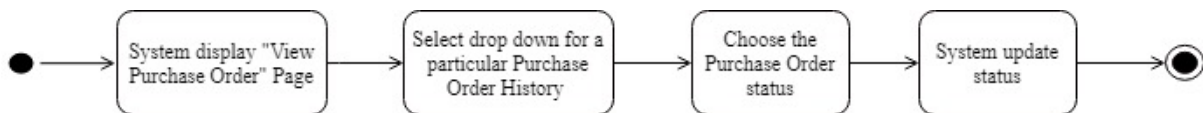**Figure 4.8.1d: Purchase Order Summary Page**

4.8.2 Module 8 Diagrams

Figure 4.8.2: Issue Purchase Order Activity Diagram

Figure 4.8.2 above showed the activity diagram for Issue Purchase Order module. The activity starts with the Main Menu page where the system will display 'Issue Purchase Order' button. After the user clicked the button, the user will be navigated to the Purchase Order Form page, where the user is required to fill in the relevant information. After the system has received the inputs by the user, the user will be directed to the Confirmation page, where the user will have a choice between to confirm the submission or cancel it. If the user chooses to cancel, the user will be redirected back to the Purchase Order Form page for any correction or modification. If the user chooses to submit, the user will be navigated to the Purchase Order Summary page for references before returning to the Main Menu page.

4.8.3 Module 8 Files

The following table (Table 4.3.3) contains the list of main files of the module.

File Name	Extensions
admin	.py
models	.py
tests	.py
views	.py

Table 4.8.3: Main Files of Issue Purchase Order Module

4.8.4 Module 8 Report

The following table (Table 4.8.4) contains the list of errors/enhancements/adaptations found alongside with actions that will be taken.

No	Errors/ Enhancements/Adaptation	Action Taken
1	There is one error caused simultaneously during the submit button is pressed during creating request for quotation. • PrettyTable() method error (Figure 4.8.4a). In this case, the PrettyTable method does not imported into view.py file.	To solve the PrettyTable method exception(Figure 4.8.4b) • Install PrettyTable package in python 3.6. • Go to PurchaseOrder Folder and look into view.py file. • In the view.py file, add "*from prettytable import PrettyTable*" to import the PrettyTable package.

Table 4.8.4: Errors/Enhancements/Adaptation within Issue Purchase Order Module

Figure 4.8.4a: PrettyTable Error
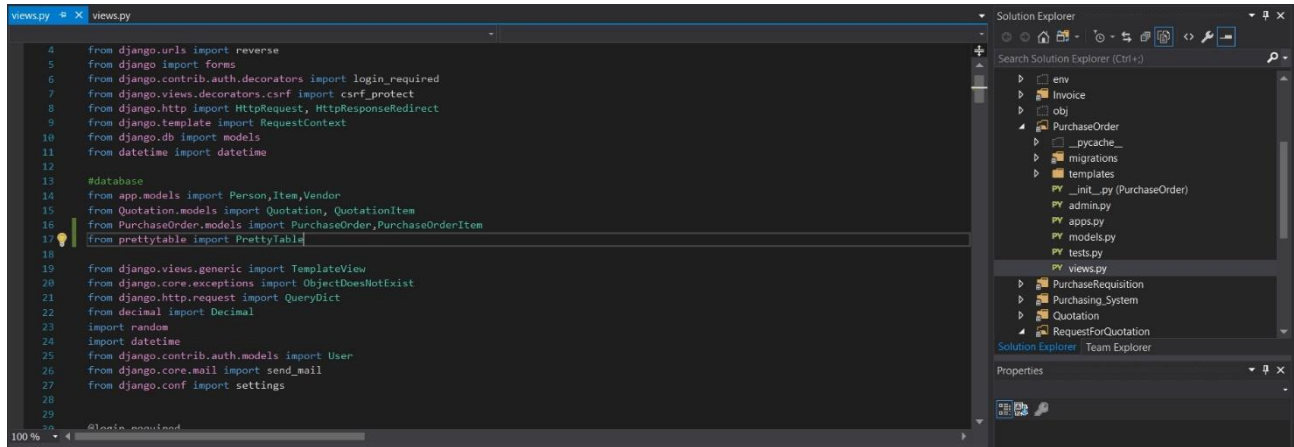
Figure 4.8.4c: Import the Package into Code.

4.9 Module 9: View Purchase Order Module

4.9.1 Module 9 Screens

The following images below are sequence of screens where View Purchase Order is implemented.

Figure 4.9.1a: Main Menu Page

Figure 4.9.1b: View Purchase Order Page

Figure 4.9.1c: Purchase Order Summary Page

4.9.2 Module 9 Diagrams

Figure 4.3.2: View Purchase Order Activity Diagram

Figure 4.3.2 above showed the activity diagram for View Purchase Order Activity module. The activity starts with the Main Menu page where the system will display 'View Purchase Order' button. After the user clicked the button, the user will be navigated to the View Purchase Order page, where the user can browse through a list of several purchase requisitions that have been submitted beforehand. The user can click on any Purchase Order ID, or the user can click the 'Back' button to navigate back to the Main Menu page. If the user chooses one Purchase Order ID, the user will be navigated to the Purchase Order Summary page for references.

4.9.3 Module 9 Files

The following table (Table 4.9.3) contains the list of main files of the module.

File Name	Extensions
admin	.py
models	.py

tests	.py
views	.py

Table 4.9.3: Main Files of View Purchase Order Module

4.9.4 Module 9 Report

The following table (Table 4.9.4) contains the list of errors/enhancements/adaptations found alongside with actions that will be taken.

No	Errors/ Enhancements/Adaptation	Action Taken
1	No error found in this module	

Table 4.9.4: Errors/Enhancements/Adaptation within View Purchase Order Module

4.10 Module 10: Record Delivery Order

4.10.1 Module 10 Screens

This figure shows the start of the main menu page in which it displays all the features on the Purchasing Management System. Users will have the options to click on the Record Delivery Order button.

Figure 4.10.1a: Main Menu Page

The following figure displays the Record Delivery Order form where users are required to fill in the necessary information to be submit.

Figure 4.10.1b: Record Delivery Form Page

The following figure is an example of a sample data in which each necessary information are filled by the users and clicked on the submit. The users will be redirected towards a confirmation page which displays a summary view of the record delivery order

Figure 4.10.1c: Record Delivery Order Confirmation Page

4.10.2 Module 10 Diagrams

Figure 4.10.2: Record Delivery Order Activity Diagram

Figure 4.10.2 above shows the activity diagram for the Record Delivery Module module. This activity starts with the Main Menu page where the system will display 'Record Delivery Order' button. After the user clicked the button, the user will be navigated to the Record Delivery Order Form page, in which the user is required to fill in the necessary information to process. After the system has received the inputs by the user by clicking on submit button, the user will be directed towards the Confirmation page. In this page, the user will have an option between to confirm the submission or cancel it. If the user chooses to cancel, the user will be redirected back to the Record Delivery Order

Form page for any correction or modification. If the user chooses to submit, the user will be directed to the Record Delivery Order Summary page for references before returning to the Main Menu page.

4.10.3 Module 10 Files

The following table (Table 4.10.3) contains the list of main files of the module.

File Name	Extensions
admin	.py
models	.py
tests	.py
views	.py

Table 4.10.3: Main Files of Record Delivery Order Module

4.10.4 Module 10 Report

The following table (Table 4.10.4) contains the list of errors/enhancements/adaptations found alongside with actions that will be taken.

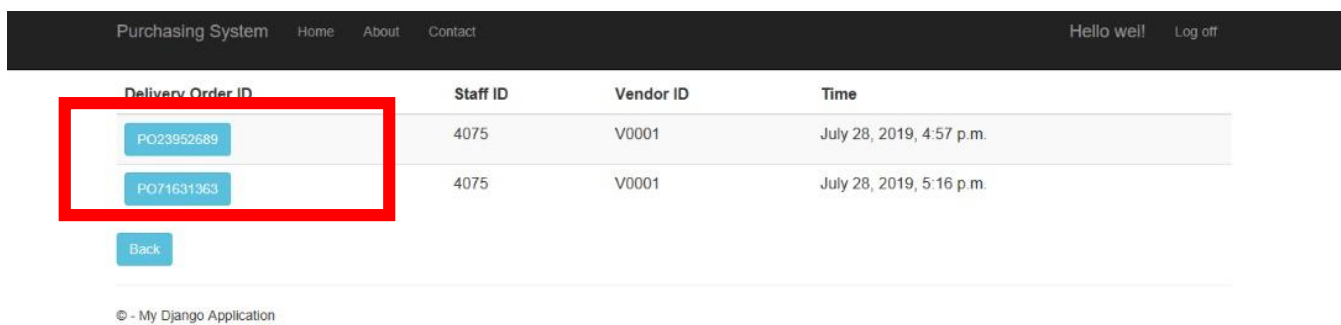| No	Errors/ Enhancements/Adaptation	Action Taken
1.	DoesNotExist at /fillingdeliveryorder Exception occurs when items does not exist on Purchase Order ID	To solve the DoesNotExist: • Select DeliveryOrder Folder under the Purchasing System and look into view.py file. • In the view.py file, look for "except PurchaseOrder.DoesNotExist:" under the exception handling method • Change the line into "except PurchaseOrder.ObjectDoesNotExist:"
2.	IntegrityError at /deliveryorderdetails which happens when the delivery order of the same item is being done twice	To solve the Integrity Error: • Select DeliveryOrder Folder under the Purchasing System and look into view.py file. • In the view.py file, add the line "*from django.db import IntegrityError".* In the same file, go to "*deliveryordedetails*" method to try and exception on the error.

Table 4.10.4: Errors/Enhancements/Adaptation within Record Delivery Order Module
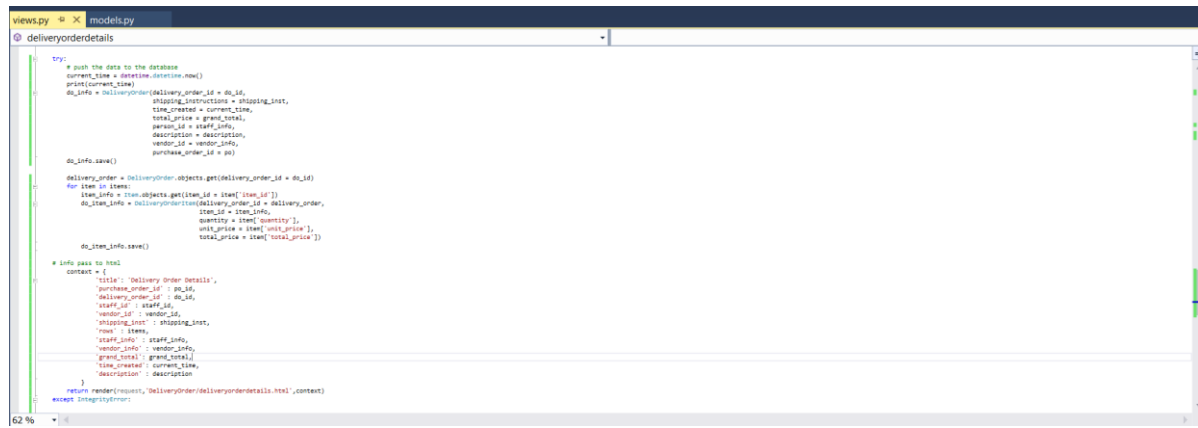
Figure 4.10.4a: DoesNotExist at /fillingdeliveryorder

Figure 4.10.4b: IntegrityError at /deliveryorderdetails

Figure 4.10.4c: IntegrityError fixed

4.11 Module 11: View Delivery Order

4.11.1 Module 11 Screens

The following screen display the Main Menu of the Purchasing Management System. The View Delivery Order will be available to be clicked upon.
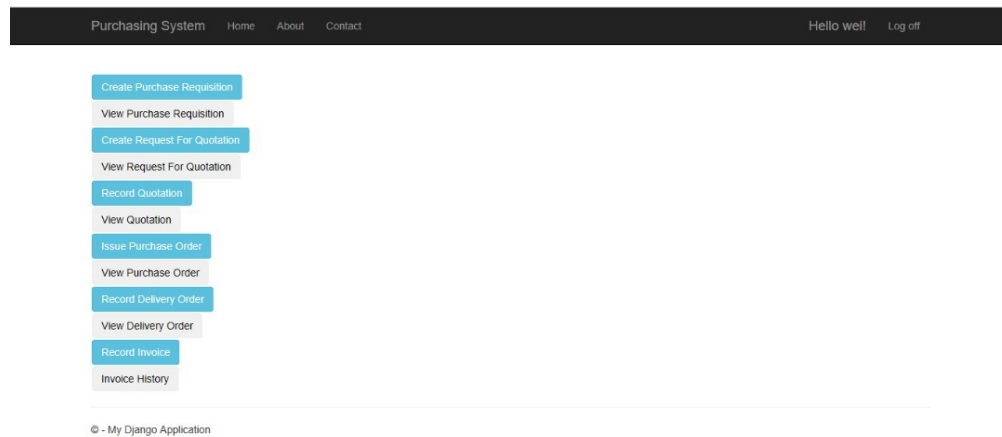
Figure 4.11.1a: Main Menu Page

The following screen displays the list of delivery order with information of Delivery Order ID, Staff ID, Vendor ID and Time.

Figure 4.11.1b: View Delivery Order Page

The following figure shows a summary page once an item of the view delivery order is being selected.

Figure 4.11.1c: View Delivery Order Summary Page

4.11.2 Module 11 Diagrams
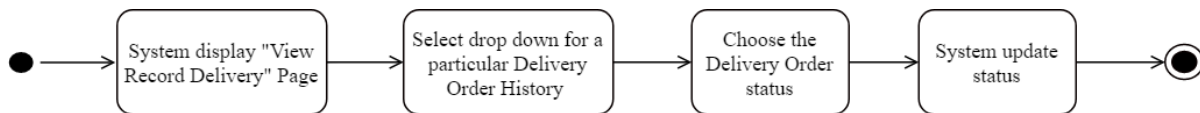
Figure 4.11.2: View Delivery Order Activity Diagram

Figure 4.11.2 above shows the activity diagram for View Delivery Order module. This activity starts with the Main Menu page where the system will display 'View Delivery Order' button. After the user clicked on the button, the user will be directed to the View Delivery Order page, where the users will be prompted through a list of several Delivery Order ID that have been submitted. The user can click on any Delivery Order listed, or the user has the option to click the 'Back' button to navigate back to the Main Menu page. If the user chooses one of the Delivery Order ID, the user will be navigated to the Delivery Order Summary page for any information viewing.

4.11.3 Module 11 Files

The following table (Table 4.11.3) contains the list of main files of the module.

File Name	Extensions
admin	.py
models	.py
tests	.py
views	.py

Table 4.11.3: Main Files of Record Delivery Order Module

4.11.4 Module 11 Report

The following table (Table 4.11.4) contains the list of errors/enhancements/adaptations found alongside with actions that will be taken.

No	Errors/ Enhancements/Adaptation	Action Taken
1.	Delivery Order ID might be misinterpreted as Purchase Order as it starts with PO	The system is fixed to display the correct and easier view for Delivery Order ID which is DO instead of PO

Table 4.11.4: Errors/Enhancements/Adaptation within View Delivery Order Module

Figure 4.11.4: PO displayed under Delivery Order ID

4.12 Module 12: Record Invoice

4.12.1 Module 12 Implementation Screens

The following screen display the Main Menu of the Purchasing Management System. The Record Invoice will be available to be clicked upon.
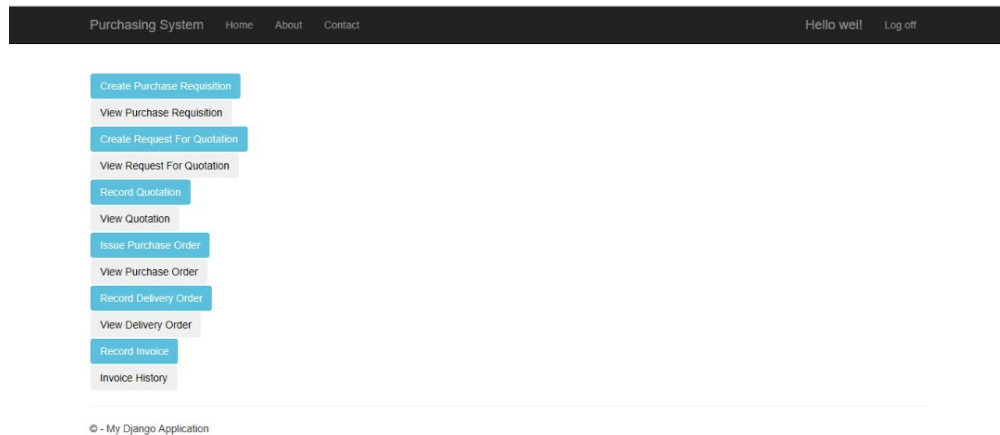
Figure 4.12.1a: Main Menu Page

Figure 4.12.1b below depicts the record invoice form the Finance Manager would access and fill up for future reference. the user searches the purchase ID to verify that the purchase has gone through and in the system.

Figure 4.12.1b: Record Invoice Form

Figure 4.12.1c below displays the information associated with the order ID that helps fill up parts of the form except for the Invoice Description.

Figure 4.12.1c: Information associated with the order ID

Figure 4.12.1d below displays the final confirmation page for the user to review the contents before confirming it.

Figure 4.12.1e: Confirmation Page.

4.12.2 Module 12 Diagrams
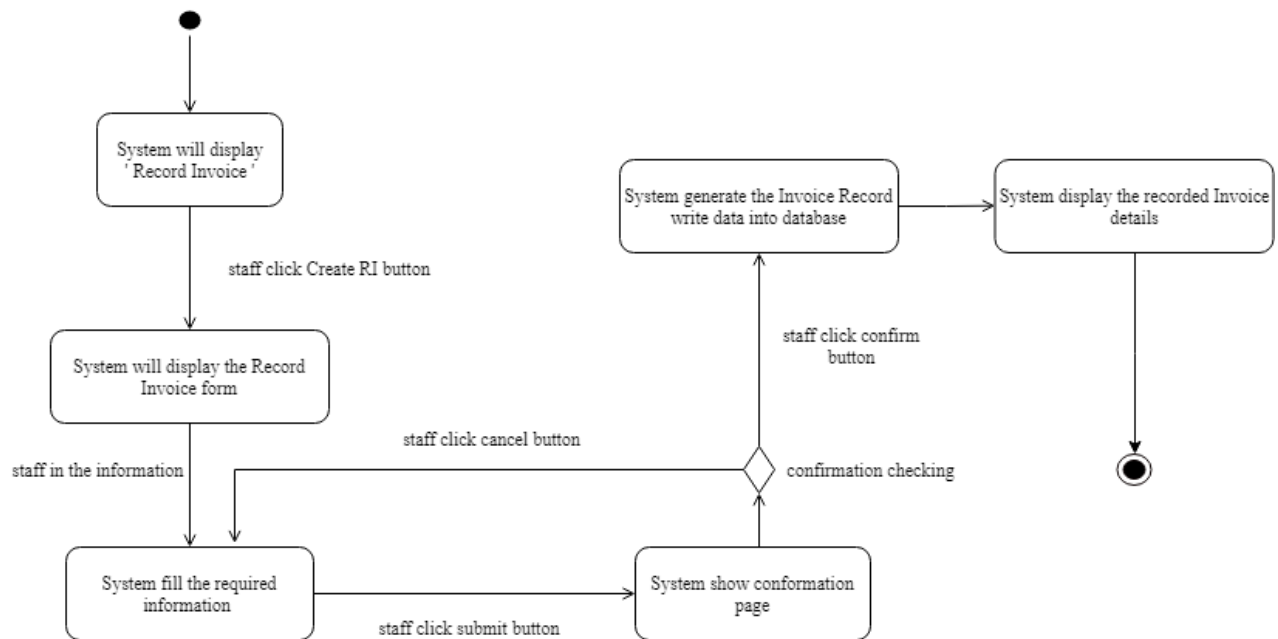
Figure 4.12.2: Record Delivery Order Activity Diagram

Figure 4.12.2 above showed the activity diagram for the Record invoice module. The activity begins on the Main menu after the user has recorded delivery order and view the recorded order where there is a button 'Record Invoice'. After the user clicked the button, the user will be redirected to the Record Invoice Form where the user is required to search the Purchase Order ID and The Invoice ID, Purchase Order ID, Staff ID, Vendor ID are shown based on the existing information from the Purchase Order ID. The user can fill in the Invoice Description if there is additional information for future reference. After the system has received the inputs by the user, the user will then be redirected to the confirmation page, where the user will finalize and choose either to proceed by pressing the 'confirm' button or to redo the form by pressing the 'cancel' button. Once user chooses to submit, the user will be navigated to the Record Invoice Summary page for references before returning to the Main Menu page.

4.12.3 Module 12 Files

File Name	Extensions
admin	.py
models	.py
tests	.py
views	.py

Table 4.13.3: Main Files of Invoice History Module

4.12.4 Module 12 Report

The following table (Table 4.12.4) contains the list of errors/enhancements/adaptations found alongside with actions that will be taken.

No	Errors/ Enhancements/Adaptation	Action Taken
1	Key in the wrong input will direct the user to an error page.	Rather than navigating the user towards the error page, the user should be informed of the mistakes they need
2	The user is navigated to an error page after he/she confirms the submission of the Record Invoice. Therefore second invoice never confirmed.	Correction will be done within the code itself.

Table 4.12.4: Errors/Enhancements/Adaptation Record Invoice within Module

Figure 4.12.4a: DoesNotExist at /invoice

Figure 4.12.4b: MultipleObjectsReturned Error at /Invoice

4.13 Module 13: View Invoice

4.13.1 Module 13 Screens

The following screen display the Main Menu of the Purchasing Management System. The Record Invoice will be available to be clicked upon.

Figure 4.13.1a: Main Menu Page

Figure 4.13.1b below is the list of recorded invoice that has been done beforehand.

Figure 4.13.1b: List of Invoices Page.

Figure 4.13.1c below is the details of the Invoices when the user clicks on the invoice number

Figure 4.13.1c: Information of Invoices Page.

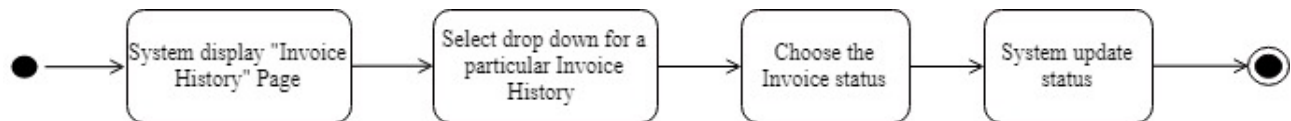## 4.13.2 Module 13 Diagrams

Figure 4.13.2: Invoice History Activity Diagram

Figure 4.13.1 above showed the activity diagram for Invoice History Module. The activity starts with the Main Menu page where the system will display the Invoice History button. After the user Presses the button, the user will be navigated to the Invoice History page, where the user can browse through a list of several Invoices that have been submitted before this. The user can click on any Purchase Requisition ID, or the user can click the 'Back' button to revert to the Main Menu page. If the user chooses one of the Invoice ID, the user will be navigated to the Invoice Summary page to refer the given information that is related to the Invoice ID.

4.13.3 Module 13 Files

The following table (Table 4.13.3) contains the list of main files of the module.

File Name	Extensions

admin	.py
models	.py
tests	.py
views	.py

Table 4.13.3: Main Files of View Purchase Order Module

4.13.4 Module 13 Report

The following table (Table 4.13.4) contains the list of errors/enhancements/adaptations found alongside with actions that will be taken.

No	Errors/ Enhancements/Adaptation	Action Taken
1	No error found in this module	

Table 4.13.4: Errors/Enhancements/Adaptation within View Invoice Module