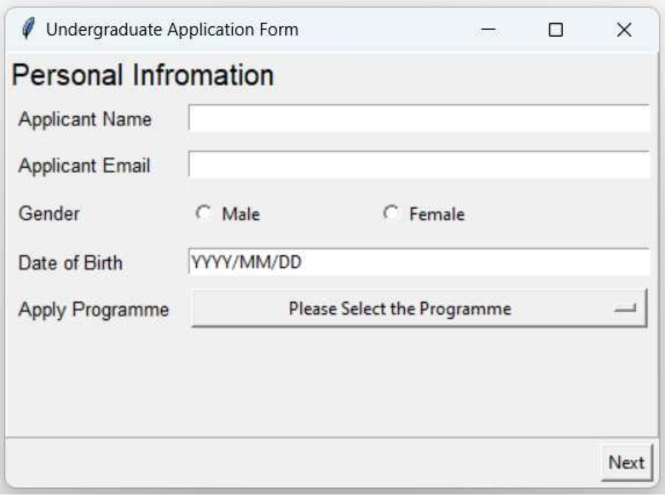
## *Objective*

This assignment is to implement the **IT University Application System** using Object Oriented Programming Techniques. Your coding must be able to show concepts such as Abstraction, Encapsulation, Inheritance and Polymorphism. Your program must be able to do the following:

1. Add applicant personal information, selected degree programme, higher diploma information.
2. Preview the records.

## *Requirements of the Assignment*



Undergraduate Application Form

Personal Infromation

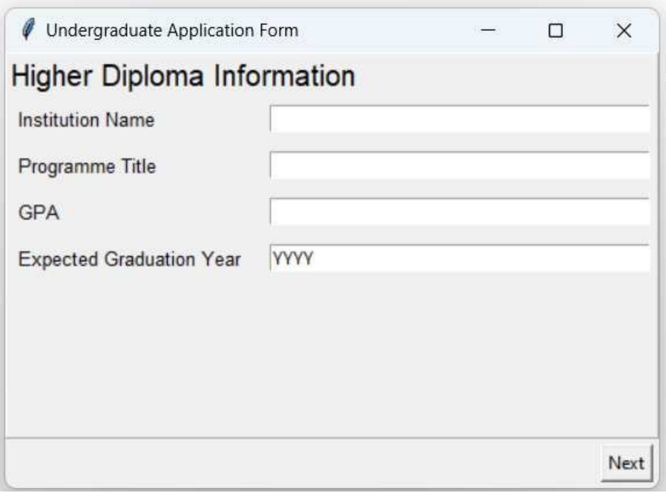
Applicant Name

Applicant Email

Gender ○ Male ○ Female

Date of Birth YYYY/MM/DD

Apply Programme Please Select the Programme



Undergraduate Application Form

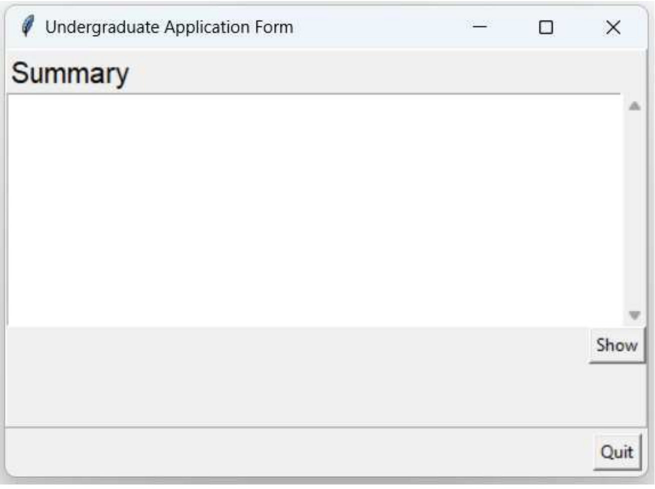
Higher Diploma Information

Institution Name

Programme Title

GPA

Expected Graduation Year YYYY

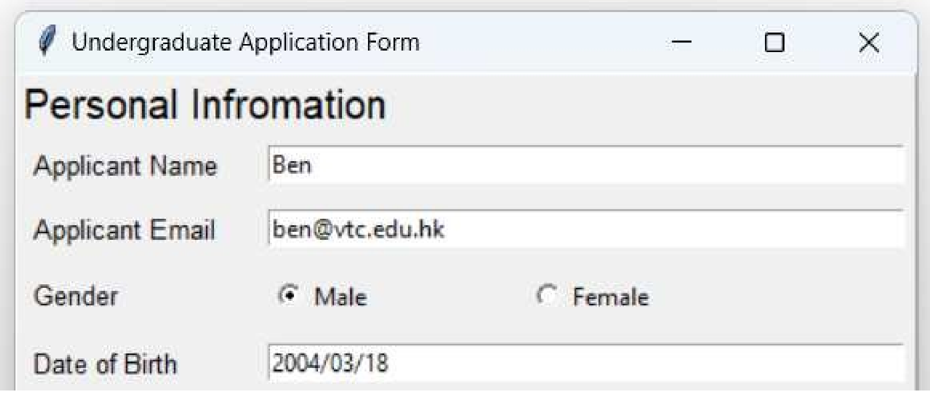


Undergraduate Application Form

Summary

**Personal Information**: The user can add his/her own peronal information (Applicant name Entry, Applicant Email Entry, Gender Radiobox, Date of Birth Entry, Apply Programme Option Menu)

The user should input the all the fields.
The default value of “Date of Birth” is YYYY/MM/DD which is the input fomart.


Undergraduate Application Form

Personal Infromation

Applicant Name: Ben

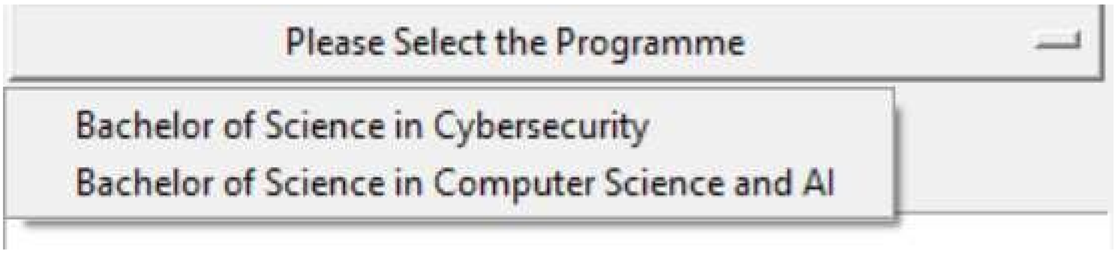
Applicant Email: ben@vtc.edu.hk

Gender: ● Male ○ Female

Date of Birth: 2004/03/18

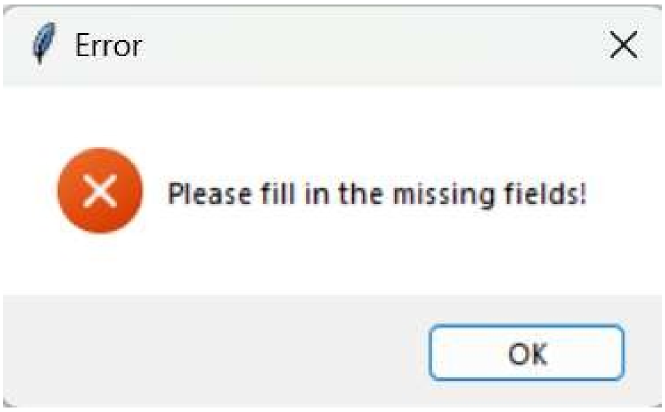
**Selected Degree Programme**: The user can select the degree programme by the Option Menu. There are two degree programmes for user to choose.

The default text is “Please Select the Programme”


Please Select the Programme
Bachelor of Science in Cybersecurity
Bachelor of Science in Computer Science and AI

**Next Button**: Go to next page. (Higher Diploma Infomration)

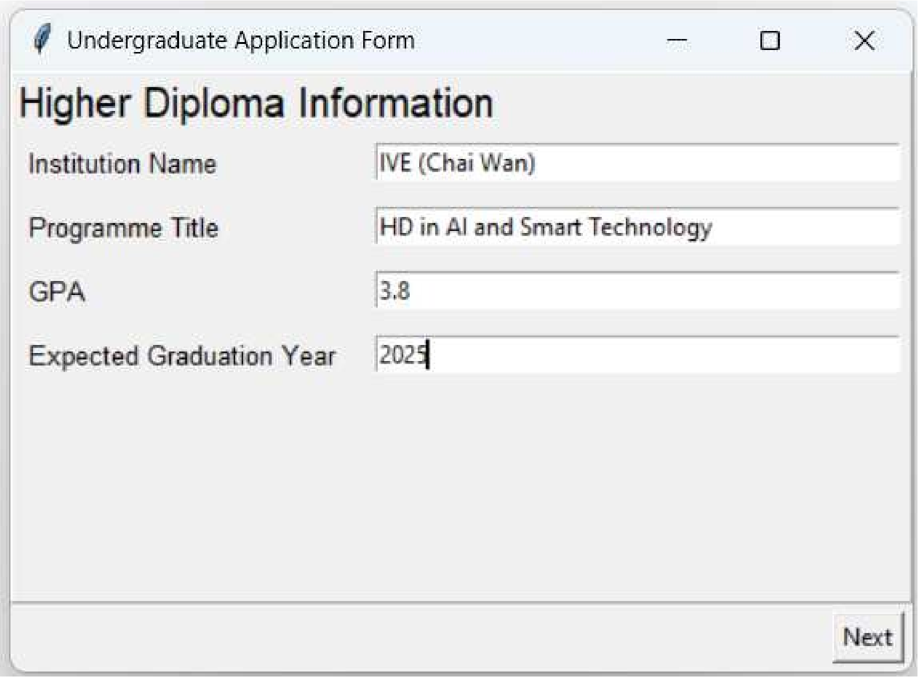
If any fields are missing, the error MessageBox appears


Error

Please fill in the missing fields!

**Higher Diploma Information**: The user can add his/her Higher Diploma Information. Institution Name Entry, Programme Title Entry, GPA Entry and Expected Graduation Year Entry

The default of “Expected Graduation Year Entry” is YYYY which is the input fomart.



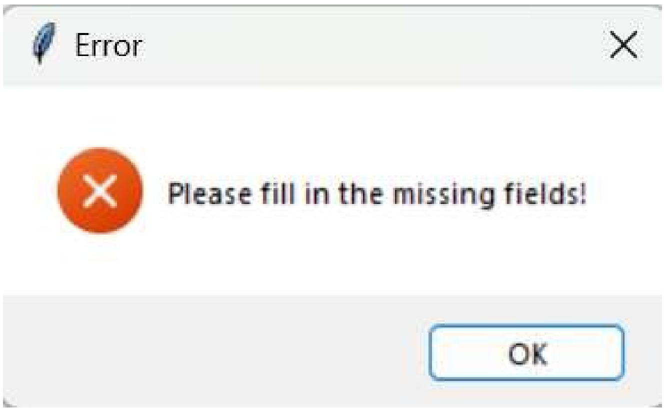
Undergraduate Application Form

Higher Diploma Information

| | |
|---|---|
| Institution Name | IVE (Chai Wan) |
| Programme Title | HD in AI and Smart Technology |
| GPA | 3.8 |
| Expected Graduation Year | 2025 |

**Next Button**: Go to next page. (Summary)

If any fields are missing, the error MessageBox appears

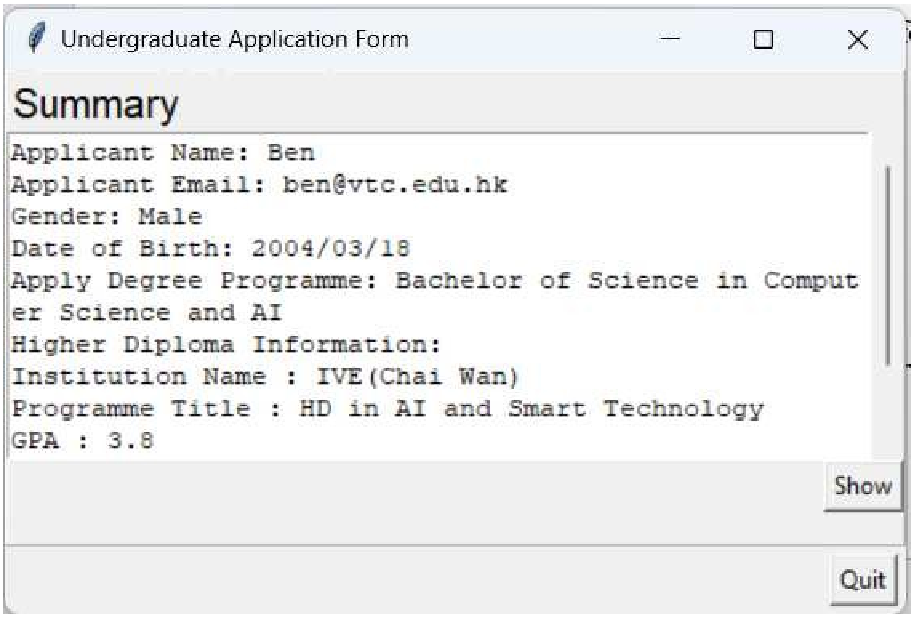


Error

Please fill in the missing fields!

**Summary**: Shows the user information inputted in the previous pages

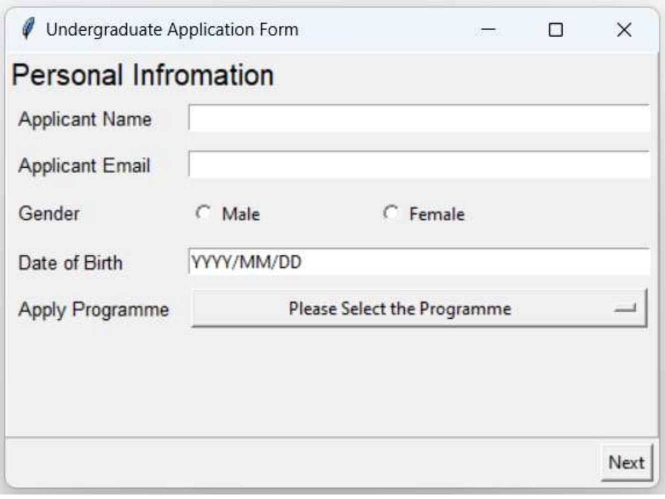
**Show button**: the scrollText appears user information.

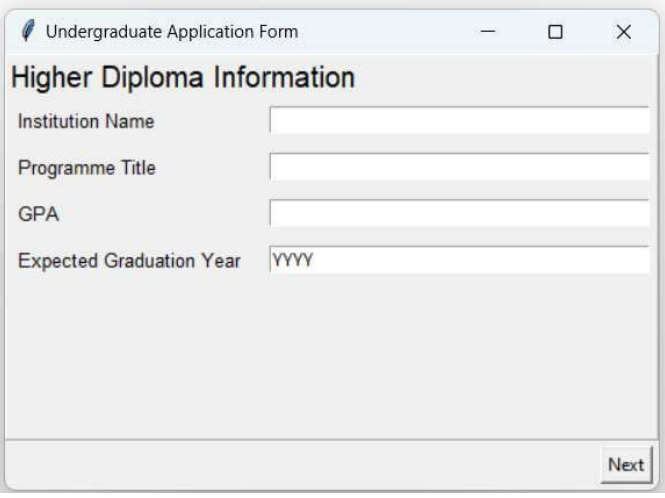


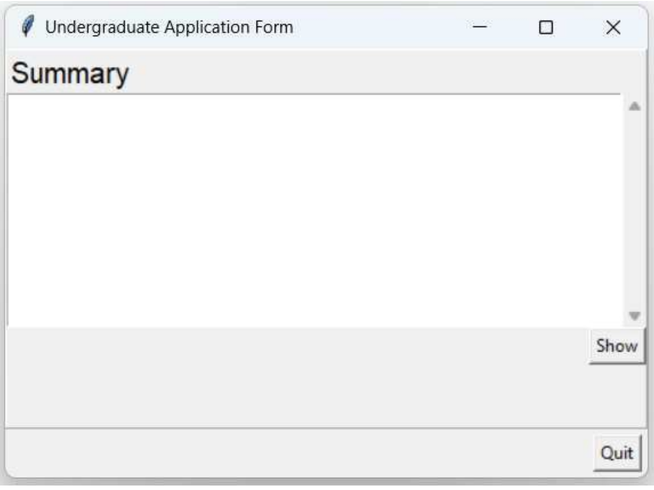
```
Applicant Name: Ben
Applicant Email: ben@vtc.edu.hk
Gender: Male
Date of Birth: 2004/03/18
Apply Degree Programme: Bachelor of Science in Comput
er Science and AI
Higher Diploma Information:
Institution Name : IVE(Chai Wan)
Programme Title : HD in AI and Smart Technology
GPA : 3.8
```

**Quit button:** Exit the Undergration Application Form

You are required to develop the above 3 tkinter windows. The class diagram of the required library is shown in the next section. You are required to complete both the application and the class library so that your program produces the same result as the above requirement.







## *You are required to complete 2 PARTS for this assignment*

### *Part I:*

(i) Complete the classes **Applicant**, **HDinfo**.

(ii) Build tkinter client class **Personal** layout**.**

(iii)Complete the **Next button method.**

(iv) **Validate the input data** and **display appropriate error messages** in your program. Avoid any unhandled exception occur in your program.

### *Part II:*

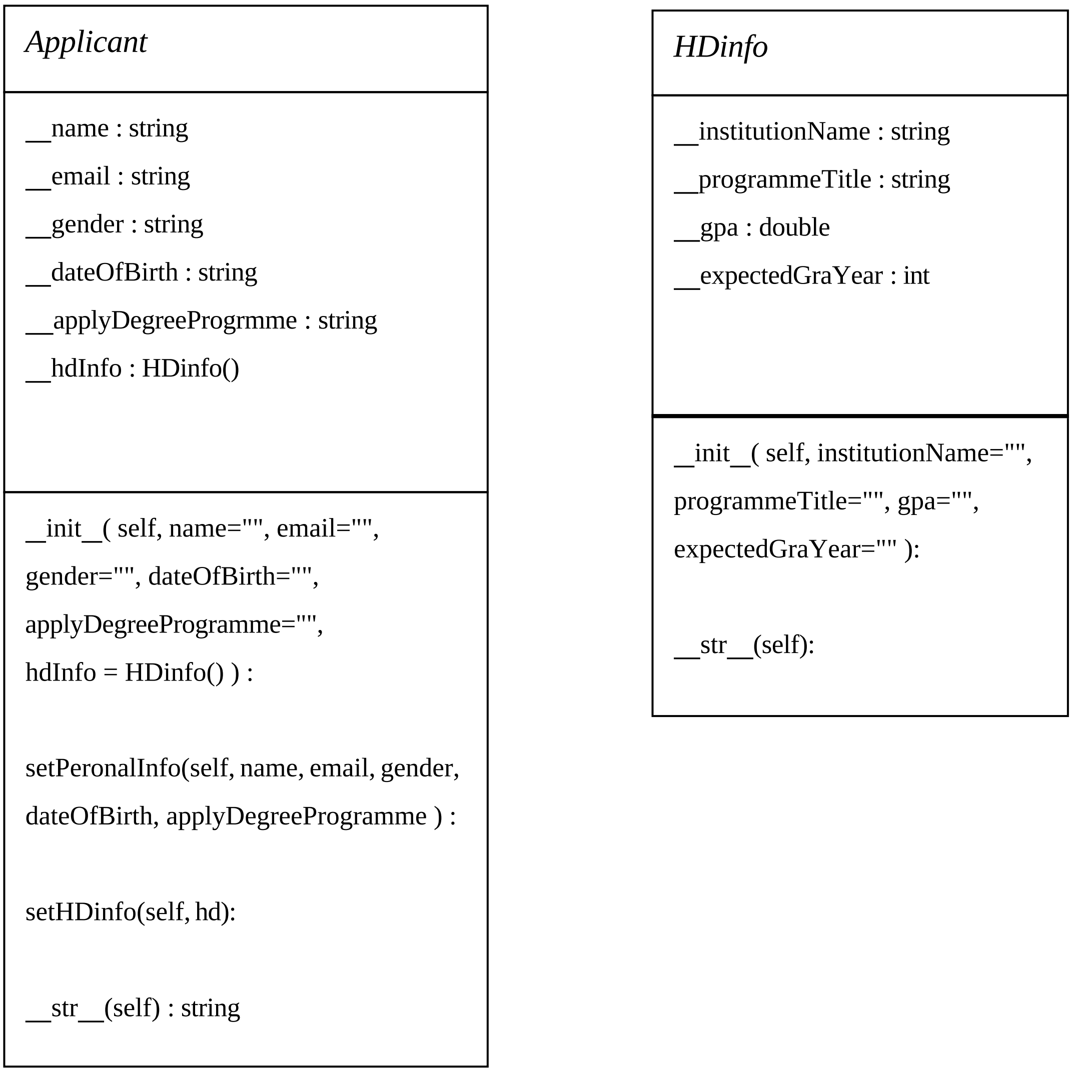
(i) **Make a backup copy of Part I first** and the above source code are **ready for submission**.

(ii) The implementation is the same as Part I, complete the **Higher Diploma Information** and **Summary** tkinter windows and its related methods.

(iii)Complete the **Next**, **Show** and **Submit** button methods**.**

## *Description of Class Library:*

Class Diagram:



*Applicant*

__name : string

__email : string

__gender : string

__dateOfBirth : string

__applyDegreeProgrmme : string

__hdInfo : HDinfo()

_init_( self, name="", email="", gender="", dateOfBirth="", applyDegreeProgramme="", hdInfo = HDinfo() ) :

setPeronalInfo(self, name, email, gender, dateOfBirth, applyDegreeProgramme ) :

setHDinfo(self, hd):

__str__(self) : string

*HDinfo*

__institutionName : string

__programmeTitle : string

__gpa : double

__expectedGraYear : int

_init_( self, institutionName="", programmeTitle="", gpa="", expectedGraYear="" ):

__str__(self):

**Class Applicant**

Attributes:

**__name** – a **non-public string** to store the name of the applicant.

**__email** – a **non-public string** to store the email of the applicant.

**__gender** – a **non-public string** to store the gender of the applicant.

**__dateOfBirth** – a **non-public string** to store the applicant date of birth.

**__applyDegreeProgramme** – a **non-public string** to store the applicant selected degree programme

**__hdInfo**– a **non-public HDinfo**(self-defined class) to store the applicant Higher Diploma information

Methods:

**__init___**– initialize all attributes in Applicant object. It is a Parameterized constructor.

**setPeronalInfo** – setter method to set the __name, __email, __gender, __dateOfBirth, __applyDegreeProgrmme into the Applicant object.

**setHDinfo** – setter method to set the HDinfo object into the Applicant object.

**__str___**– return a string containing the **Attributes** of this Applicant. This function is used to display in Summary ScrolledText.

**Class HDinfo**

Attributes:

**__institutionName**– a **non-public string** to store the HD institution name of the applicant.

**__programmeTitle** – a **non-public string** to store the HD programme name of the applicant.

**__gpa** – a **non-public double** to store the HD GPA of the applicant.

**__expectedGradeYear**– a **non-public int** to store the Expected HD Graduation Year of the applicant.

Methods:

**__init___**– initialize all attributes in **HDinfo** object. It is a Parameterized constructor.

**__str___**– return a string containing the **Attributes** of **HDinfo** object. This method is used to display in Summary ScrolledText.

Apart from the above specification, **you may add other methods to the classes if necessary**.

## *Instructions to Students*

1. This is an **End of Module Assessment** and the weighting of this assignment is **20%** of the Module Mark.
2. This assignment should be done by each **individual** student. Plagiarism will be treated seriously. All assignments that have been found involved wholly or partly in plagiarism (no matter these assignments are from the original authors or from the plagiarists) will score Zero mark.
3. You must use Python 3.9 or above to develop the programs.
4. Your programs must follow the coding standard stated in PEP 8 – Style Guide for Python Code. Marks may be deducted if the coding standard is not followed.
5. You are required to hand in

   5.1 A test plan showing the **evidence of testing**.

   5.2 Source code of all classes which should be well-commented.

| ID | Test Case Name | Procedure | Expected Output | Result |
|---|---|---|---|---|
| 1 | Next button in the Personal Information window | 1. Click “Next” button | The error MessageBox appears “Please enter all required information.” | Pass / ~~Fail~~ |
| | … | | | |
| 30 | Close button in the Summary window | 1. Click “Close” button | Exit the Undergration Application Form | Pass / ~~Fail~~ |

6. Distribution

- System Implementation and Programming Style

Part I

| File | Implementation |
|---|---|
| assignment.py | class Applicant, class HDinfo |
| assignment.py | class Personal |

Part II

| File | Implementation |
|---|---|
| assignment.py | class HighDiploma |
| assignment.py | class Result |

- Validation on the input data and display appropriate error messages
- Test Plan with test cases and test results.