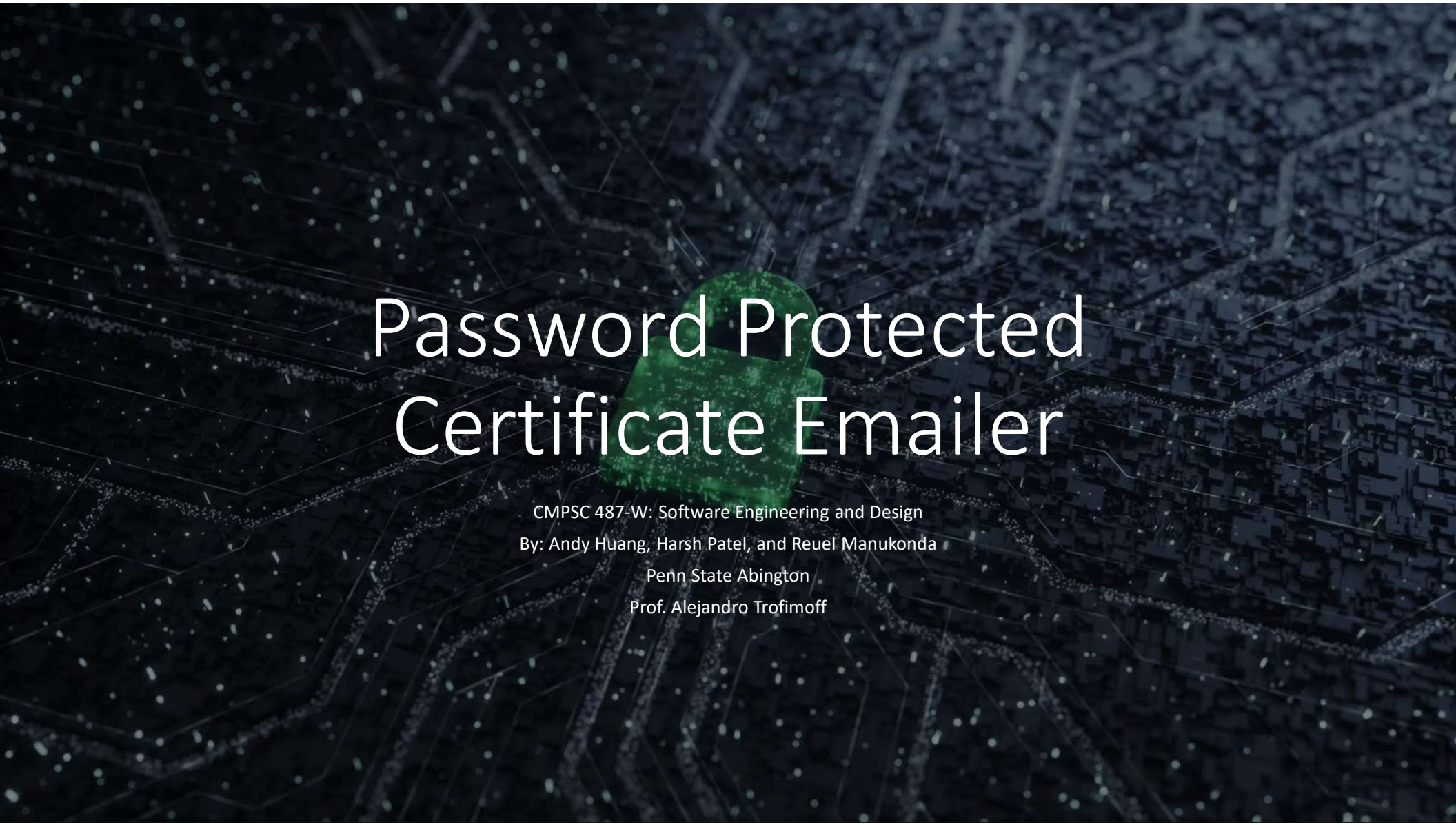


Password Protected Certificate Emailer

CMPSC 487-W: Software Engineering and Design

By: Andy Huang, Harsh Patel, and Reuel Manukonda

Penn State Abington

Prof. Alejandro Trofimoff

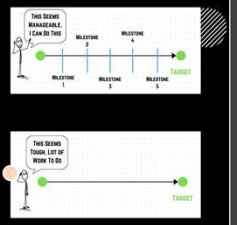
Outline

- Poster
- Introduction
- Goal
- Example and Template Certificate
- Data
- Data Structures
- Algorithm
- GUI Design
- Results
- Software Develpoment Cycle Model
- Software Testing Strategies
- Conclusion
- Learning Outcomes
- Improvements
- Demo
- Questions

Password Protected Certificate Generator

Goal

- Automatically emails the certificate to appropriate students.
- Print option for a physical copy of the Certificate
- Take Certificate Attributes from user and generate it based on those attributes.



Certificate Template

Data

CERTIFICATE DATA			
ATTRIBUTE NAMES	**ATTRIBUTE DESCRIPTION**	**TYPE**	**NULL**
NAME	First and last name of the recipient	text	NO
AWARD_NAME	Name of the course completed	text	NO
HOURS	Length of the course	Integer	NO
LOCATION	Place of completion	text	NO
DATE	Date of certificate generation	text	NO
EMAIL	Email of the recipient	text	NO

PySimpleGUI

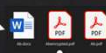
GUI Design

Select an Excel File Containing Data

Manually Enter Details

Allows user to generate Certificates in bulk using an Excel sheet.
(It will generate Certificates for each row and send it in an email for the recipient to view.)

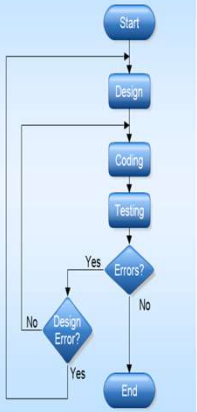
Allows the user to generate one Certificate at a time.
(It will generate and email it based on the information entered.)



The encrypted copy is sent. So, no modifications can be made by the recipient.

User will have copies to view and edit but the recipient can only view it.

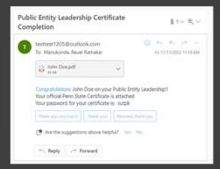
Software Development



Algorithm

Take	Map	Word	Email
Take input from user: Excel File or Entry Form	Map each attribute from the input to the Certificate template and save it as word document.	Word doc -> PDF -> Encrypted PDF	Email it to each recipient, if there are more than one.

Results



Improvements

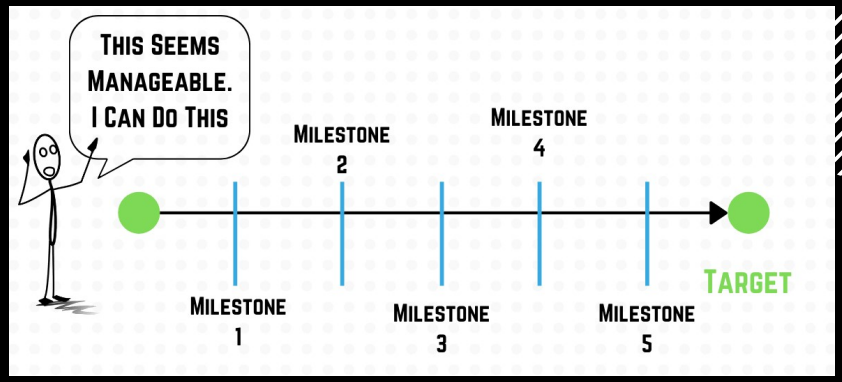
- Error handling
- Decrease memory usage
- 2-Factor Authentication

Introduction

- Project Idea by Christine Cicio
  - Director of Continuing Education
- Problem:
  - Manually create individual certificates
- Solution:
  - Issue a wide variety of password protected certificates

Goal

- Take Certificate Attributes from user and generate it based on those attributes.
- Automatically emails the certificate to appropriate students.
- Print option for a physical copy of the Certificate



Example Certificate

- Certificate Features:
  - Penn State Branding
  - Student Name
  - Course Completed
  - Date of Completion
  - Length of the Course (Hours, day, etc.)
  - Signature of Issuer
  - Licensing Number
  - Student ID/Number


The Pennsylvania State University
Abington College

Awards the
Public Entity Leadership Certificate
For Successful Completion of 40 Hours of Instruction
to

John Doe

Abington
AWARDED
December 2022

PennState
Abington

Christine Cicio
Director, Continuing Education
Penn State Abington

Certificate Template

Data

CERTIFICATE DATA			
ATTRIBUTE NAMES	**ATTRIBUTE DESCRIPTION**	**TYPE**	**NULL**
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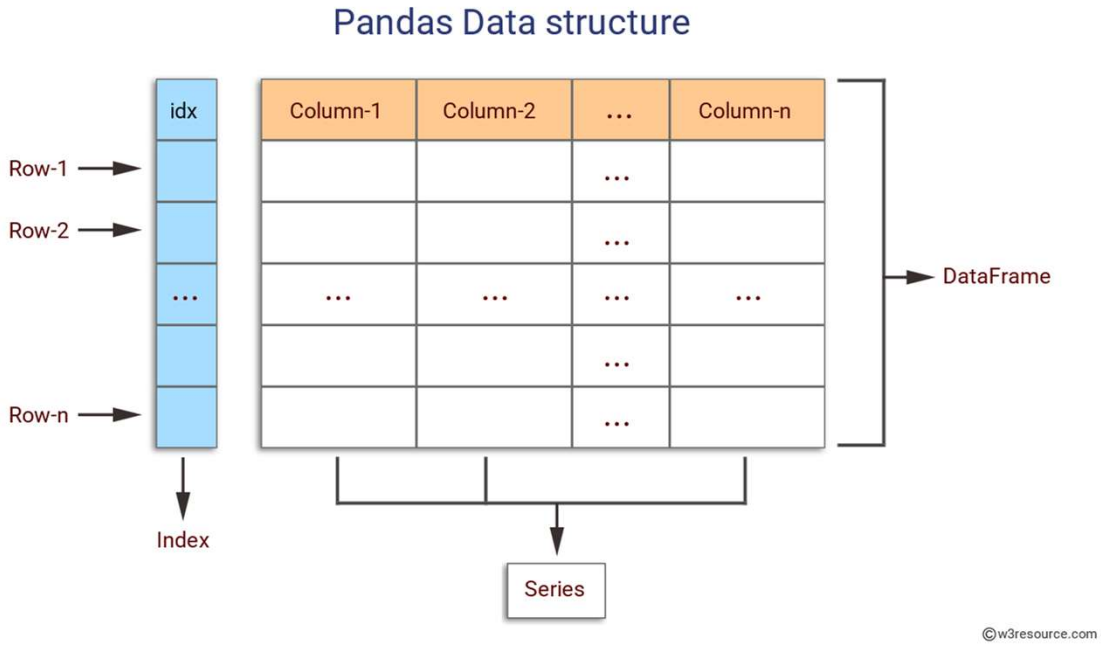
DATE	Date of certificate generation	String	NO
EMAIL	Email of the recipient	String	NO

Format of Input Excel File

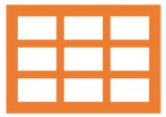
	A	B	C	D	E	F
1	Name	Award_Name	Hours	Location	Date	Email

Data Structures

- Excel Spreadsheet: User-provided Data for certificates.
- Pandas Data Frame: Used to map the data from an excel file to the certificate template.
- Dictionary: Used to map the data from entry form to the certificate template.



Algorithm



Take input from user: Excel File or Entry Form. This is performed using Python's PySimpleGUI.

Map each attribute from the input to the Certificate template and save it as word document. This is performed using pandas
and docxtpl.

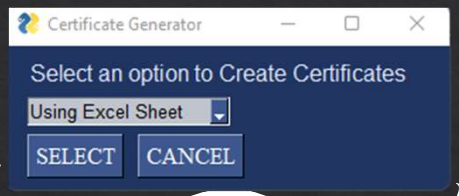
Word doc -> PDF -> Encrypted PDF

Email it to each recipient, if there are more than one. Multipurpose Internet Mail Extensions (MIME) is
used to email.

Productivity (Software Metric)

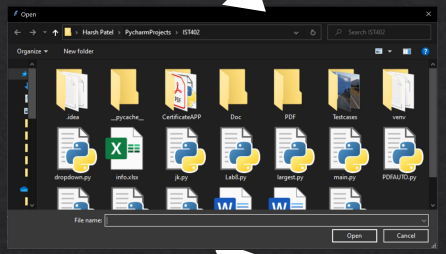
Task	Time
Selecting Excel file/Entering Details	Depends on user speed of typing/Locating file.
Processing (Generating Word and Pdf files)	Max 5 minutes if there are lot of entries in an excel file.
Emailing	Takes few seconds (Long if first time)

GUI Design



Select an Excel File Containing Data

Manually Enter Details



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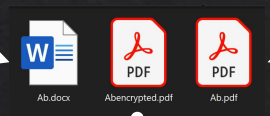

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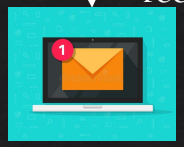

Allows the user to generate one Certificate at a time.
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Results

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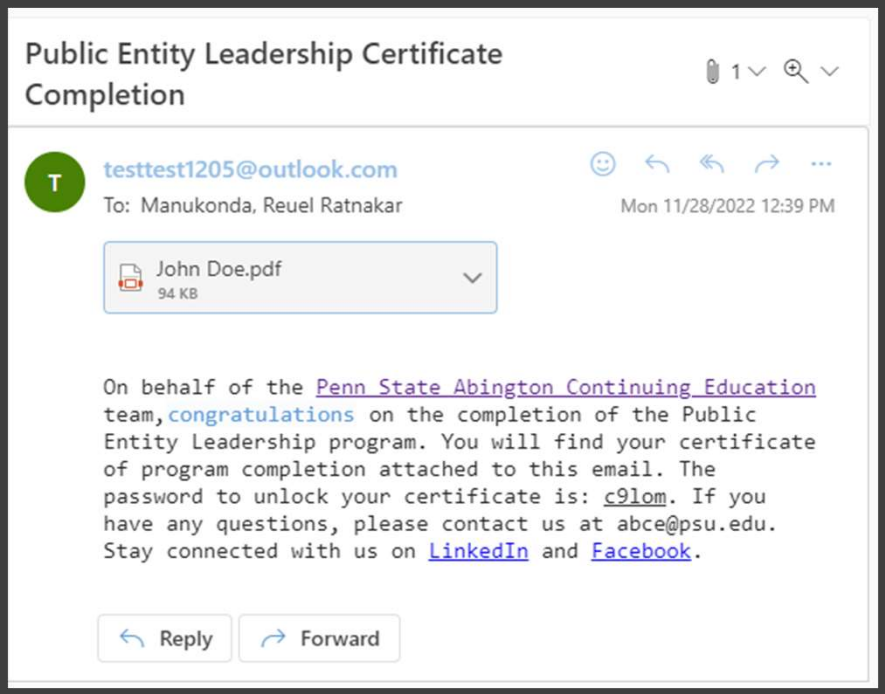


Public Entity Leadership Certificate Completion

1

T

testtest1205@outlook.com

To: Manukonda, Reuel Ratnakar

Mon 11/28/2022 12:39 PM

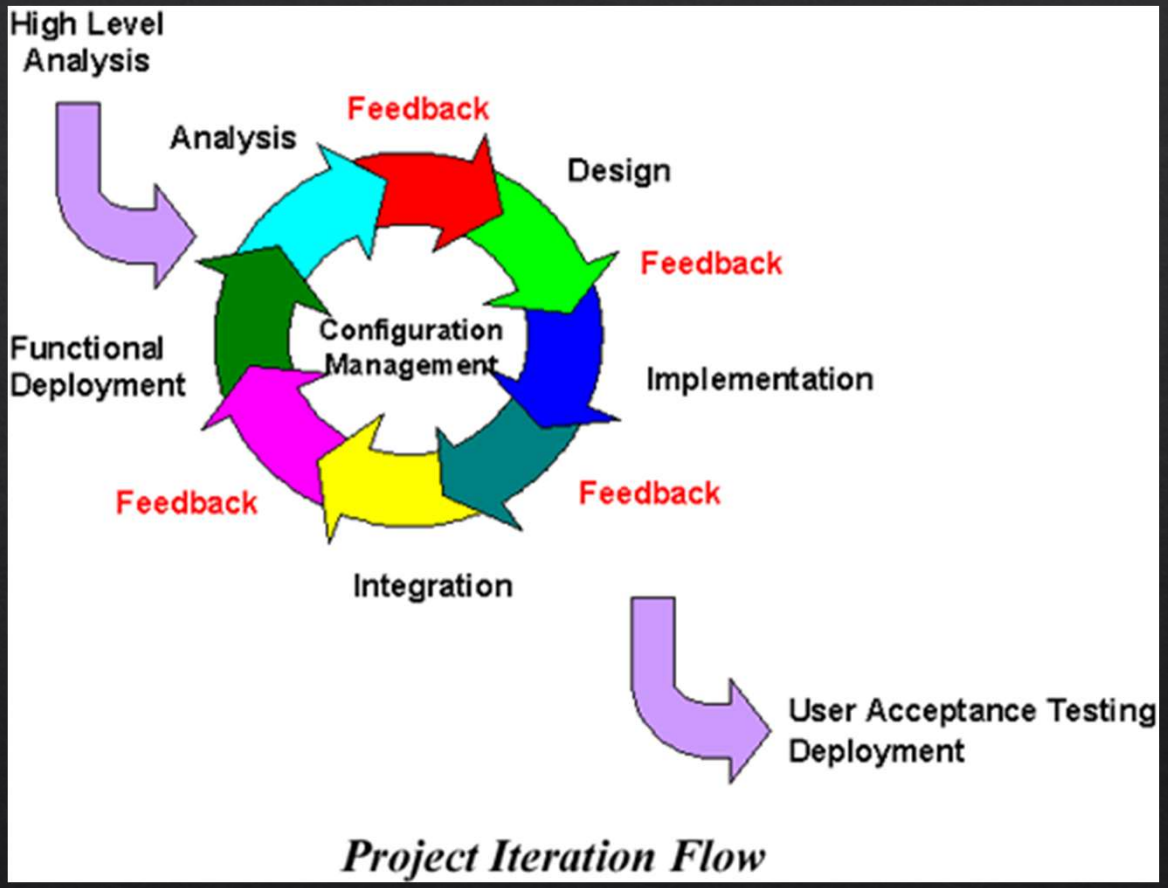
John Doe.pdf
94 KB

On behalf of the Penn State Abington Continuing Education team, congratulations on the completion of the Public Entity Leadership program. You will find your certificate of program completion attached to this email. The password to unlock your certificate is: c9lom. If you have any questions, please contact us at abce@psu.edu. Stay connected with us on LinkedIn and Facebook.

Reply Forward

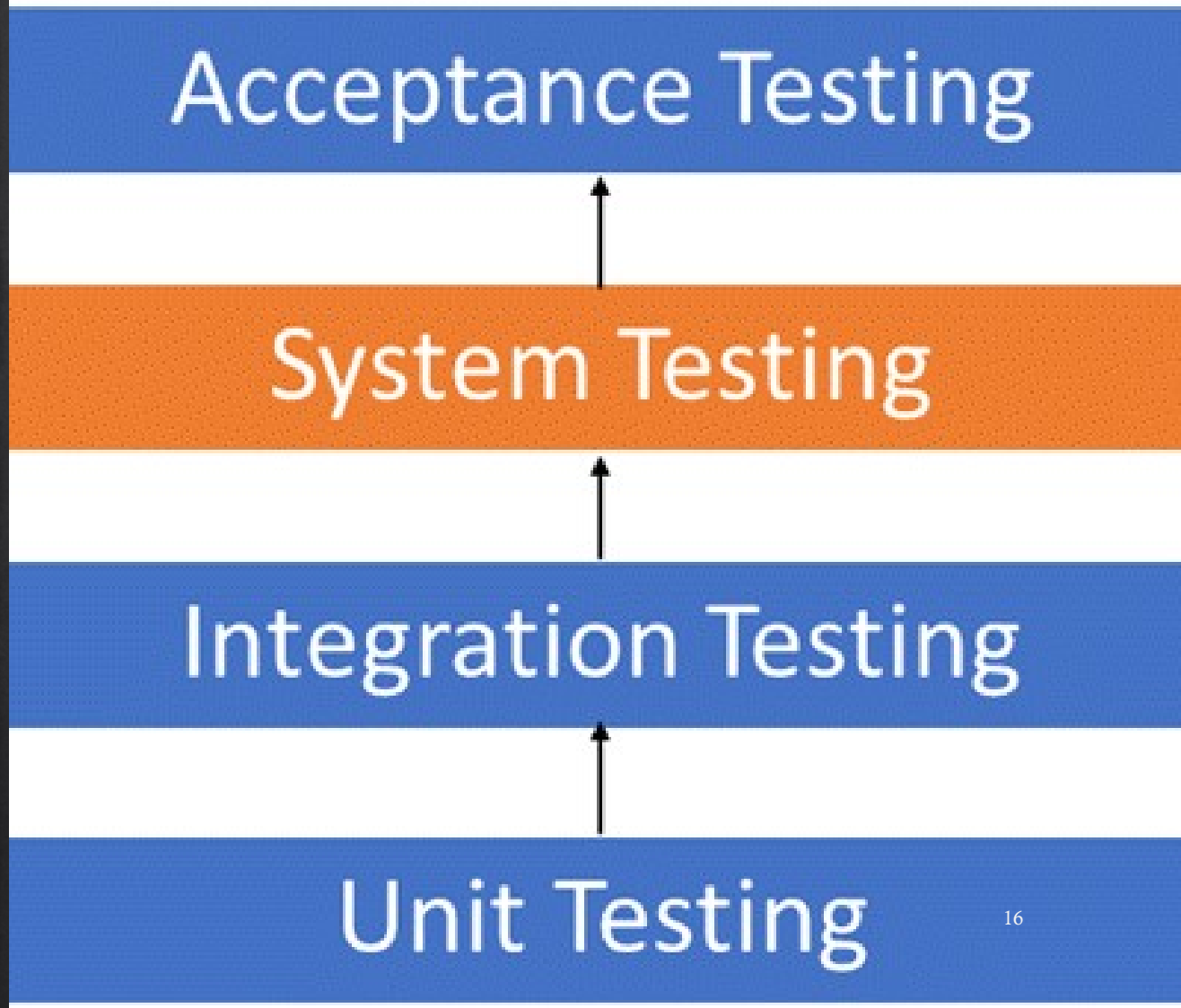
Software Develpoment Cycle Model

- Iterative Development Method



Project Iteration Flow

Software Testing Strategies



Conclusion

What we learned

- Efficiently develop a GUI in python.
- Gained more knowledge on handling files and file paths.
- How to automate a manual process by using a single programming language.
- How to send an email with an attachment with Python.

PySimpleGUI

Improvements

- Error handling (Advanced)
- File Deletion
- Decrease memory usage
- Speed of Application
- 2-Factor Authentication
- Editable owner password and email
- MAC OS Problems

Questions?