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| **Laboratory Activity No. 9** | |
| **Introduction to GUI Development using Pycharm** | |
| **Course Code:** CPE103 | **Program:** BSCPE |
| **Course Title:** Object-Oriented Programming | **Date Performed: 04/16/25** |
| **Section: 1A** | **Date Submitted: 04/16/25** |
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| **1. Objective(s):** | |
| This activity aims to familiarize students with the Pycharm framework for GUI Development | |
| **2. Intended Learning Outcomes (ILOs):** | |
| The students should be able to:   * 1. Identify the main components in a GUI Application   2. Create a simple GUI Application using Pycharm Widgets | |
| **3. Discussion:** | |
| A Graphical User Interface (GUI) application is a program that the user can interact with through graphics (windows, buttons, text fields, checkboxes, images, icons, etc..) such as the Desktop GUI of Windows OS by using a mouse and keyboard unlike with a Command-line program or Terminal program that support keyboard inputs only.  Pycharm is an integrated development environment used for programming in Python. It provides code analysis, a graphical debugger, an integrated unit tester, integration with version control systems, and supports web development with Django. | |
| **4. Materials and Equipment:** | |
| Desktop Computer with Anaconda Python or Pycharm Windows Operating System | |
| **5. Procedure:** | |

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| 1. Run the program and observe the output.   **Adding an icon**   1. Download any .ico picture from <https://icon-icons.com/> or any similar sites. 2. Place the icon in your folder (ex. Oopfa1<lastname>\_lab8) 3. Run the program again, the program should now have an icon similar to the program below.     **Creating Buttons**   1. Create a new .py file named **gui\_buttons.py** then copy the program as shown below: |

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| 1. Run the program and observe the output. 2. Add a new button named button2 named Register to the GUI that will display “this button does nothing.. yet..” when it is hovered.   **Creating Text Fields**   1. Create a new file named **gui\_text.py** and copy the code shown below: |

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| 1. Run the program and observe the error. 2. Add an import QLineEdit to the Pycharm.Widgets import 3. Run the program and observe the output. 4. Add the following code below self.textbox.resize()   self.textbox.setText("Set this text value")  4. Run the program again then resize the textbox so that it fits in the Window and that its height is just above the written text’s height.  **Creating Labels**  1. Create a new file called **gui\_labels.py** and copy the following code below: |

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| 1. Run the program and observe the output. 2. Add the necessary Widget at the import line to make the program run. 3. Center the label by adjusting the parameters of .move(). This is called Absolute Positioning. 4. Create a new label called “This program is written in Pycharm” and place it at the center and below the Hello World! |
| **6. Supplementary Activity:** |
| **Task**  Create an Object-Oriented GUI Application for a simple Account Registration System with the following required information: first name, last name, username, password, email address, contact number.  Requirements:   * The GUI must be centered on your screen. * The GUI Components should be organized according to the order of information required using Absolute Positioning. * The position of the components should be automatically computed based on the top component. * All the text fields should be accompanied with their corresponding label on the left side while the text field is on the right side. * There should a program title other than the Window Title. * There should be a submit button and clear button at the bottom (submit button on the left, clear button on the right). * The program should be launched on **main.py** while the GUI Codes should be on a separate file called   **registration.py** |

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| **Questions**   1. What are the common GUI Applications that general end-users such as home users, students, and office employees use? (give at least 3 and describe each)   Microsoft word, this is a type of an app that commonly used for writing reports, resumes, assignments and letters  Sometimes used in html. Google Chrome, aa web browser used to access internet. Microsoft Excel, a spreadsheet    App used for organizing data, oerforming calculationa and creating chart.   1. Based from your answer in question 1, why do you think home users, students, and office employees use those GUI programs?   These programs are user friendly and help users complete tasks effieciently, home users use them for personal  Tasks like browsing and writing, students use it for school projects and research anf office emplyees use it  For proffesinal tasks.   1. How does Pycharm help developers in making GUI applications, what would be the difference if developers made GUI programs without GUI Frameworks such as Pycharm or Tkinter?   PyCharm helps developers by providing a smart code editor, syntax highlighting and etc.,which makes building  GUI apps faster and more organized.   1. What are the different platforms a GUI program may be created and deployed on? (Three is required then state why might a program be created on that specific platform)   Microsoft, macOS and Linux. Windows are used by everyone while mascOS are used of some creative industries  And linux used in tech industries and by developers for its open source nature.   1. What is the purpose of **app = QApplication(sys.argv)**, **ex = App()**, and **sys.exit(app.exec\_())**?   App = QApplications(sys.argv) initializes the GUI application and handles commad like  Arguments.  Ex = App() creates and instance of the main application window or class/  Sys.exit(app.exec\_()) runs the application loop and ensures a clean exit when the application is closed. |
| **7. Conclusion:** |
| In, Conclusion, GUI applications play a vital role in every day task for user s, and like Pycharm and framework such as Tkinter greatly simplify the development of these programs across different platforms. |
| **8. Assessment Rubric:** |