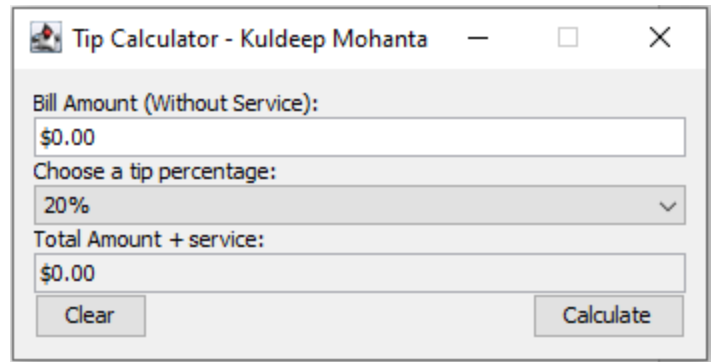


## Bonus 4 – GUI Report

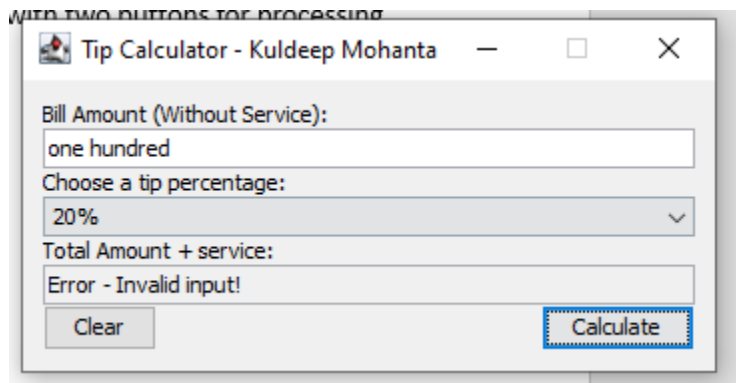
### Part 2 – Initial Screen



The screenshot shows a window titled "Tip Calculator - Kuldeep Mohanta". It contains three text input fields and a dropdown menu. The first field, labeled "Bill Amount (Without Service):", contains "\$0.00". The second field, labeled "Choose a tip percentage:", has a dropdown menu showing "20%". The third field, labeled "Total Amount + service:", contains "\$0.00". At the bottom, there are two buttons: "Clear" on the left and "Calculate" on the right.

**Screenshot 1**

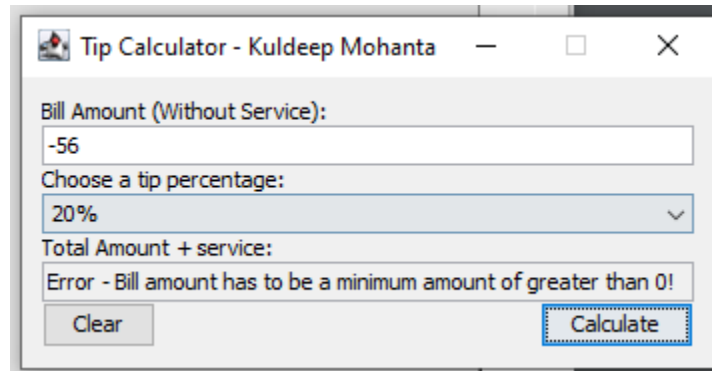
Context: This is the initial screen that appears when the application starts. It displays default values of \$0.00 as well as the default tip (%) percentage. It also presents the user with two buttons for processing calculations as well as a clearing form button



The screenshot shows the same window as Screenshot 1, but with different input. The "Bill Amount (Without Service):" field now contains the text "one hundred". The "Total Amount + service:" field now displays the error message "Error - Invalid input!". The "Calculate" button is highlighted with a blue dashed border, indicating it is the focus of the error.

**Screenshot 2**

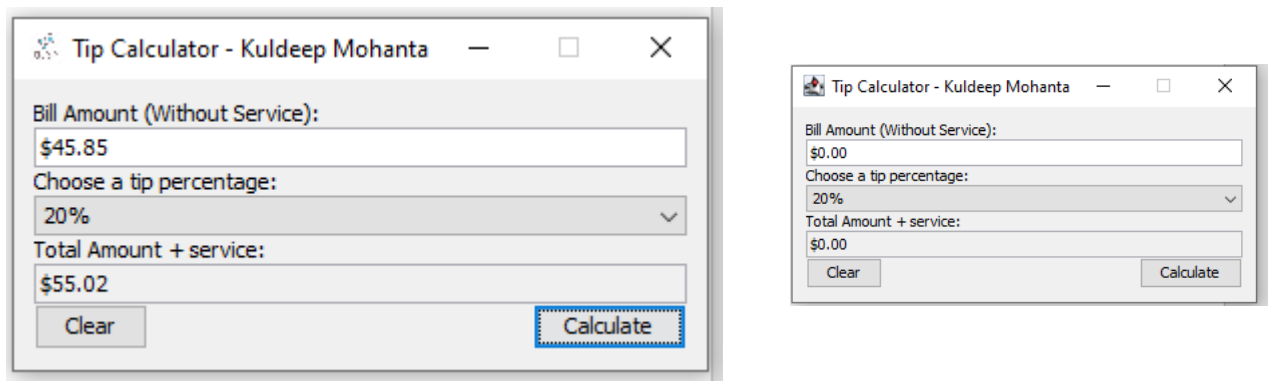
Context: The user had entered non-numeric value for the bill amount and was presented with an error dialog.



**Screenshot 3**

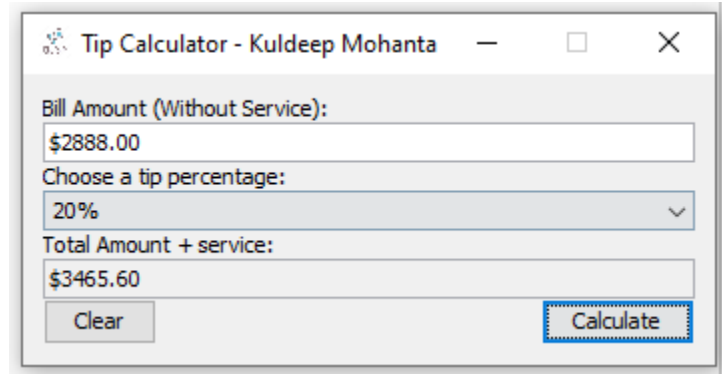
Context: The user had entered a negative bill amount which is invalid input, so the calculator displayed an error message to remind the user to enter positive values greater than 0

#### Part 4 – Valid input and Output



**Screenshot 4 (Correct User input received and clear button used to default the calculator)**

Context: The user had entered correct numeric values for the calculator and then pressed calculate, which successfully performed the mathematical expressions to conclude what the final amount for the bill would be.



**Screenshot 5**

Context: The user had entered correct numeric values for the calculator and then pressed calculate, which successfully performed the mathematical expressions to conclude what the final amount for the bill would be.

## Part 5 – Answer the Questions

QUESTION 1 – What is the difference between a CLI app and a GUI app?

The difference between the two apps mainly comes from understanding the purpose of the app and how the user is intended to interact with it. With CLI app's the user is ideally meant to enter text-based commands and the GUI app presents the user(s) with a graphical interface with widgets like textboxes, drop down menus etc.

Both have their own benefits for what they can do and how to optimize input for the data they are programmed to processes, so it is important to use the correct kind of interface appropriate to the purpose of the program.

QUESTION 2 – What library (package) are we using (importing) to build Java GUI apps?

In Java, we had used the Swing package to use graphical components like windows, text fields, buttons, and more, within a graphical interface (window).

QUESTION 3 – What is the advantage of using a Combo Box instead of a Text Field (text box)?

When using a combo box, the user is presented with several pre-defined inputs that saves the program the issue of receiving invalid data. Whereas a text field can allow the user to input information personally, it could result in the program not receiving input in an expected format to continue processing the information which can result in errors.

QUESTION 4 – What is the advantage of using a read-only (not-editable) component (widget)?

There are a number of benefits to utilizing read-only components in a program as it can save the user the potential problem of editing fields that are not supposed to be edited. Which in the long run also helps to simplify the data validation requirements of the program as less fields are needed to be maintained for input validation. Lastly, it also contributes to helping keep the user focused on what they should be inputting or understanding since there is overall less to interact with.