## **Project 1**

Dan Beck

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Prof. Françoise Keefe

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## **Lessons Learned**

This project was a real test of knowledge for everything I have learned in previous courses and lessons leading up to this project. I have written small programs that read text from a file but never did anything more than reprint the text in the compiler output or do some calculations with the data extracted. I remember learning a little about recursion in previous course but never got to implement it in a project. While still being a new skill, implementing a program that uses parsing with recursion has given me a much stronger base to my programming knowledge.

A skill that I was unable to use was how to read grammar given and making a program from that grammar. In previous courses, I only read and wrote the grammar but was never able to implement what was written down into a working program. While this is still a developing skill, I feel much more comfortable with reading the grammar.

## **Test Plan**

- Figure 1 shows the successful running of the program with given example.
- Figure 2 shows running the program with a different size frame.
- Figure 3 shows error that occurs when "Window" is missing from text file.
- Figure 4 shows running the program with a different size text field
- Figure 5 shows running the program with the numbers inverted.
- Figure 6 shows errors that occur when "End." text is removed.
- Figure 7 shows the program running with different grid layout parameters

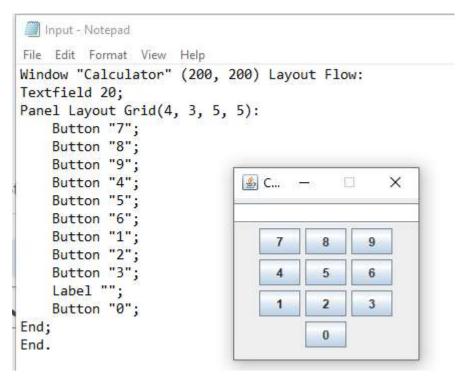


Figure 1, Successful running of program with given example file

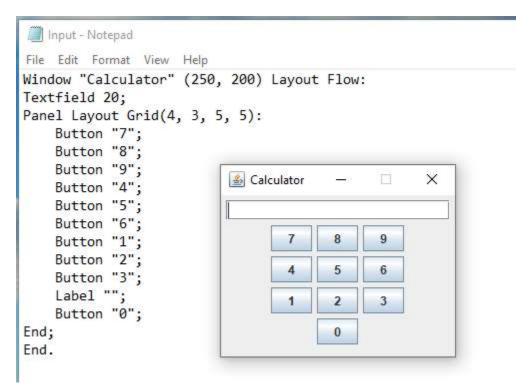


Figure 2, Different size frame

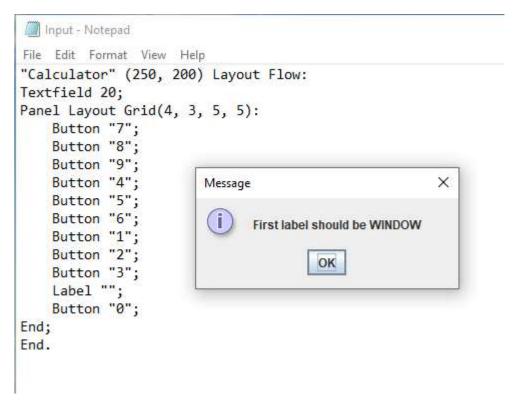


Figure 3, Missing window text

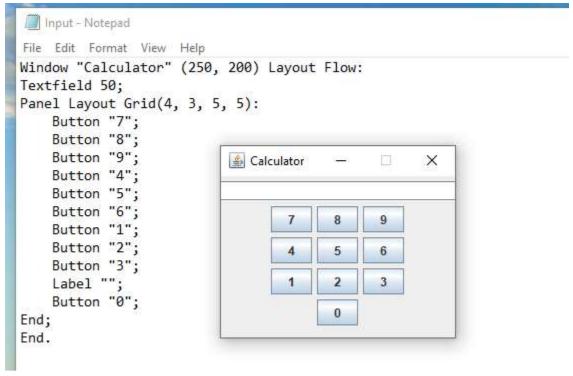


Figure 4, Different size text field

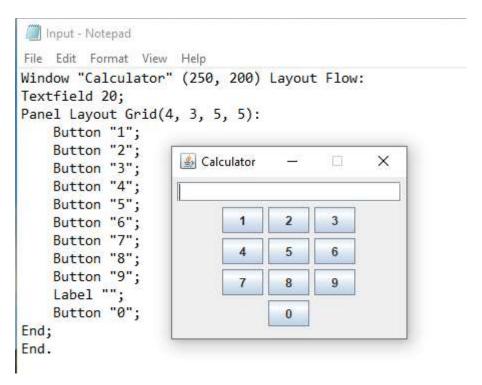


Figure 5, Inverted numbers

```
Input - Notepad
File Edit Format View Help
Window "Calculator" (250, 200) Layout Flow:
Textfield 20;
Panel Layout Grid(4, 3, 5, 5):
    Button "1";
    Button "2";
    Button "3";
                                                     X
                      Message
    Button "4";
    Button "5";
                             Nesting Error
    Button "6";
    Button "7";
                                     OK
    Button "8";
    Button "9";
    Label "";
    Button "0";
End;
```

Figure 6, Missing "End." text

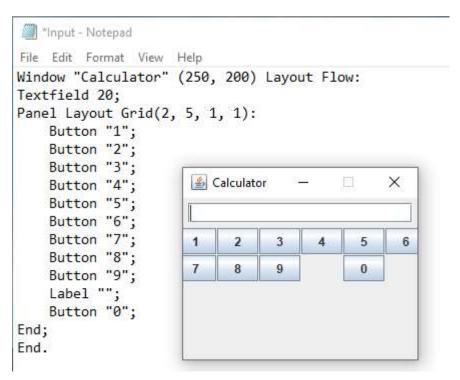


Figure 7, Changing layout parameters