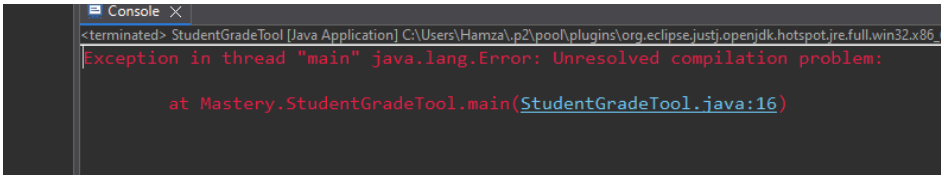
What error message did you encounter?

Error 1.



Line of code:

```
        double avg = (grades[0] + grades[1] + grades[2] + grades[3]) / 0;
        tf_avg.setText(String.format("%.2f", avg));
```

```
private JScrollPane displayPanel() {
    taData = new JTextArea();
    taData.setEditable(false);
    taData.setFont(new Font("Consolas", Font.PLAIN, 12));
    return new JScrollPane(tData);
```

- Missing semicolon after private static final String FILE_PATH = "student_grades.txt"
- Undefined variable tData in displayPanel():Missing return statement in controlsPanel() method.
- Unknown variable tf_avg instead of tfAvg in processAndStore()
- Missing semicolon in showGood() method:

What unexpected behavior did your program exhibit?

- The program failed to compile due to syntax and undeclared variable errors.
- When running, it crashes with array index or division by zero exceptions.
- Error dialogs shown for empty fields without proper handling of parsing errors, causing abrupt termination.
- Average grade calculation is invalid due to division by zero.
- UI does not load properly because event handlers fail on missing components.

What caused the issue?

- Syntax errors: Missing semicolons; no return statement in method with non-void return type.
- Logic errors: Incorrect array length, accessing beyond bounds.
- Incorrect function/variable usage: Using `tf_avg` instead of `tfAvg`; using undefined `tData` instead of `taData`.
- Arithmetic error: Dividing by zero when calculating average.
- Error handling: Missing try/catch when reading from file causing resource leaks.

- Incomplete method implementations or missing statements.

```
try {
    double[] grades = new double[4];
    for (int i = 0; i < 4; ++i) grades[i] = Double.parseDouble(gradesText[i]);

    double avg = (grades[0] + grades[1] + grades[2] + grades[3]) / 4.0;
    tfAvg.setText(String.format("%.2f", avg));
```

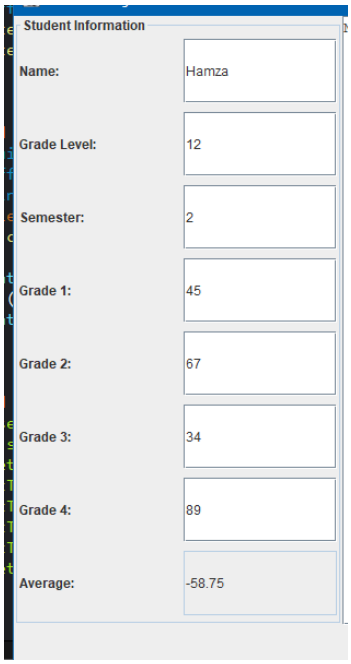
```
  // Data display panel
  private JScrollPane constructDisplayPanel() {
      taData = new JTextArea();
      taData.setEditable(false);
      taData.setFont(new Font("Consolas", Font.PLAIN, 13));
      return new JScrollPane(taData);
  }
```

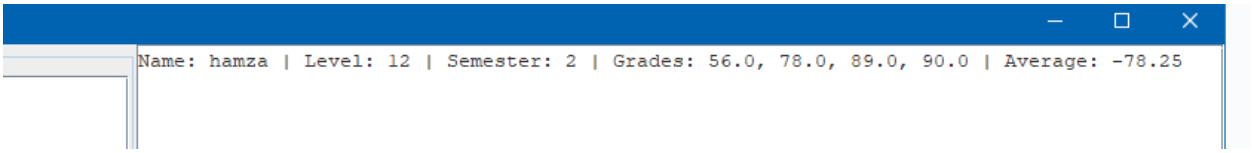
How did you fix the issue?

- Add missing semicolons.
- Replace `tData` with the correctly declared `taData`.
- Add the missing `return panel;` statement in `controlsPanel()`.
- Fix array size to 4 and loop from `i = 0` to `i < 4`.
- Change division by zero to division by 4.
- Replace `tf_avg` with `tfAvg`.
- Add missing semicolon after `JOptionPane.showMessageDialog(...)`.
- Add proper exception handling during file I/O.
- Use locale-aware numeric parsing as recommended to avoid `NumberFormatException`.
- Code cleanup for consistent indentations and method implementations.

1. What error message did you encounter?

Error 2.





- Runtime: java.lang.NumberFormatException mainly caused by replacing decimal points . with commas , when parsing numbers with Double.parseDouble().
- Logical: The average calculation was incorrect (negative values) because of subtracting grades instead of adding.
- Other possible errors: If the previous buggy code was used, you might also see ArrayIndexOutOfBoundsException or division by zero if you used /0.

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2. What unexpected behavior did your program exhibit?

- The program crashed with NumberFormatException when parsing decimal grades on systems expecting dots as decimals.
- The average displayed was incorrect and negative due to subtraction instead of addition.
- The user interface did not give meaningful error information for these issues initially.

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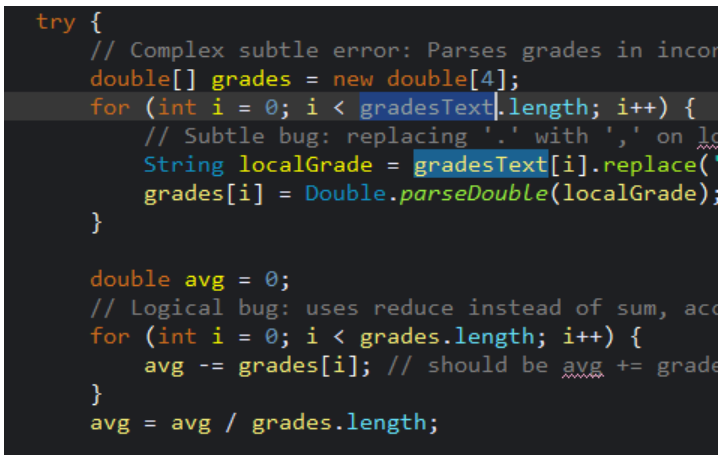
3. What caused the issue?

- Incorrect handling of decimal separators: Replacing . with , led to wrong number formats for parsing.
- Logic error: Summing grades by subtracting (avg -= grade) instead of adding.
- Arithmetic error: Division by zero (in prior erroneous versions).
- Potentially missing exception handling around file I/O operations or UI updates.

Include a screen shot of specific lines of code for error



```
try {
    // Complex subtle error: Parses grades in incor
    double[] grades = new double[4];
    for (int i = 0; i < gradesText.length; i++) {
        // Subtle bug: replacing '.' with ',' on lo
        String localGrade = gradesText[i].replace('
        grades[i] = Double.parseDouble(localGrade);
    }

    double avg = 0;
    // Logical bug: uses reduce instead of sum, acc
    for (int i = 0; i < grades.length; i++) {
        avg -= grades[i]; // should be avg += grade
    }
    avg = avg / grades.length;
```

How did you fix the issue?

- I removed the code that replaced decimals with commas, so numbers would stay in the format that Java expects. Used the Double.parseDouble() method on the trimmed grade strings, making sure spaces wouldn't cause errors. Corrected the average calculation by summing all grades with avg += grades[i] instead of subtracting.I divided the total by the number of grades using avg = avg / grades.length to get the correct average.I tested the program with a variety of inputs (including decimals and spaces) to confirm it now calculates and displays averages reliably without throwing errors.

Corrected code:

```
try {
    double[] grades = new double[4];
    double total = 0;

    for (int i = 0; i < gradesText.length; i++) {
        // Parse grades assuming '.' as decimal
        grades[i] = Double.parseDouble(gradesText[i]);
        total += grades[i];
    }

    double avg = total / grades.length;
    tfAvg.setText(String.format("%.2f", avg));
```