IT314 SOFTWARE ENGINEERING

LAB7

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I. PROGRAM INSPECTION:

1. Which category of program inspection would you find more effective?
    - Data reference error and control flow error
2. Which type of error you are not able to identified using the program inspection?
    - External dependency error, concurrency issues, performance related error
3. Is the program inspection technique is worth applicable?
    - Yes, because it helps identify common errors related to control flow, variable usage, and logical mistakes

How many errors are there in the program? Mention the errors you have identified.

-Done below for every code

II. CODE DEBUGGING: Debugging is the process of localizing, analyzing, and removing suspected errors in the code (Java code given in the .zip file)

Q1) Armstrong Number

Inspection Results:

Category A: Data Reference Errors

1. **Uninitialized or Unset Values**: No issue; all variables seem to be initialized before use.
2. **Array Bound Errors**: args[0] is referenced without checking if the array has at least one element, which can cause an ArrayIndexOutOfBoundsException if no argument is passed.
3. **Pointer or Reference Errors**: Not applicable.
4. **Subscript Out-of-Bounds Errors**: Not applicable for this code.
5. **Other Data Reference Errors**: No errors found.

Category B: Data-Declaration Errors

1. **Explicit Variable Declarations**: All variables are declared properly.

2. **Correct Length and Data Type**: remainder is incorrectly calculated as an integer division (num / 10), which should be num % 10 to get the remainder, while the current operation returns the quotient.
3. **Variables with Similar Names**: None detected.

Category C: Computation Errors

1. **Incorrect Calculation**: The formula for computing remainder is incorrect. It uses num / 10 (quotient) instead of num % 10 (remainder).
2. **Mixed-Mode Computations**: The Math.pow() function returns a double, so casting it to an int is valid here, but could introduce precision issues.
3. **Overflow or Underflow**: No obvious risk of overflow.

Category D: Comparison Errors

1. **Comparison Types**: The comparison check == n is correct.

Category E: Control Flow Errors

1. **Loop Termination**: The loop seems to work correctly, but with the incorrect logic for remainder.

Category F: Interface Errors

1. **Argument Passing**: The program expects a command-line argument (args[0]), but there's no check to ensure that the argument is provided.

Category G: Input / Output Errors

1. **Error Handling for Input**: The program does not handle invalid inputs (non-integer arguments or missing arguments).

Identified Errors:

1. **Remainder Calculation Error**: remainder = num / 10 should be remainder = num % 10.
2. **Argument Check**: args[0] is used without checking if an argument is provided.
3. **Incorrect Loop Logic**: num = num % 10 should be num = num / 10 to correctly reduce the number during iteration.
4. **Potential Input Error**: No handling for invalid command-line inputs.

Error-free code

```
// Armstrong Number
```

```
class Armstrong {
    public static void main(String args[]) {
        // Check if an argument is passed
        if (args.length == 0) {
            System.out.println("Please provide a number as input.");
            return;
        }

        // Parse the input and check for potential number format issues
        int num = 0;
        try {
            num = Integer.parseInt(args[0]);
        } catch (NumberFormatException e) {
            System.out.println("Invalid input. Please enter an integer.");
            return;
        }

        int n = num; // Store original number to check later
        int check = 0, remainder;

        // Correct loop and remainder calculation
        while (num > 0) {
            remainder = num % 10; // Get the last digit (remainder)
            check = check + (int) Math.pow(remainder, 3); // Add cube of
remainder
            num = num / 10; // Reduce the number
        }

        // Compare the sum of cubes with the original number
        if (check == n)
```

```
            System.out.println(n + " is an Armstrong Number");
        else
            System.out.println(n + " is not an Armstrong Number");
    }
}
```

Q2 GCD and LCM

Inspection Results:

Category A: Data Reference Errors

- **Incorrect usage of variables**: No major issues here, although some logic is incorrect in the GCD function, which causes infinite loops.

Category B: Data Declaration Errors

- **Variable Declaration**: Correctly declared, but the logic in the GCD and LCM calculations needs adjustment.

Category C: Computation Errors

1. **GCD Calculation Error**: The gcd() function's while loop uses the incorrect condition while(a % b == 0). It should be while(b != 0) to implement the Euclidean algorithm correctly.
2. **LCM Calculation Logic**: The lcm() function incorrectly uses if(a % x != 0 && a % y != 0) to check divisibility. The condition should be if(a % x == 0 && a % y == 0) to ensure a is a multiple of both x and y. Also, a more efficient way to calculate LCM is using the formula:

$$LCM(x,y)=x\times y/GCD(x,y)$$

Category D: Comparison Errors

- **Comparison of Types**: The logic in the LCM function is flawed because it is looking for numbers that are not multiples, which is incorrect.

Category E: Control Flow Errors

- **Infinite Loop in LCM**: The current logic could lead to an infinite loop because the condition in the LCM function checks for non-multiples instead of multiples.

Fixed Code:

```
import java.util.Scanner;
public class GCD_LCM
{
    // Function to calculate the GCD using the Euclidean algorithm
    static int gcd(int x, int y)
    {
        while (y != 0) // Correct condition for GCD
        {
            int temp = y;
            y = x % y;
            x = temp;
        }
        return x;
    }

    // Function to calculate LCM using the relation between GCD and LCM
    static int lcm(int x, int y)
    {
        return (x * y) / gcd(x, y); // Efficient calculation using GCD
    }

    public static void main(String args[])
    {
        Scanner input = new Scanner(System.in);
        System.out.println("Enter the two numbers: ");
        int x = input.nextInt();
        int y = input.nextInt();
```

```
        System.out.println("The GCD of two numbers is: " + gcd(x, y));
        System.out.println("The LCM of two numbers is: " + lcm(x, y));
        input.close();
    }
}
```

Q3 Knapsack

Inspection Results:

Category A: Data Reference Errors

- **Increment in index n++**: In the inner loop, the statement int option1 = opt[n++][w]; incorrectly increments n, which causes the wrong value to be used in subsequent steps. This should be int option1 = opt[n][w];.

Category B: Data Declaration Errors

- **Array indexing issue in option2**: In the statement option2 = profit[n-2] + opt[n-1][w-weight[n]];, using profit[n-2] and opt[n-1][w-weight[n]] is incorrect. The correct index for profit should be n, not n-2. Additionally, for weight, we should ensure that w-weight[n] is non-negative.

Category C: Computation Errors

- **Option Calculation**: The condition if (weight[n] > w) is wrong. It should be if (weight[n] <= w) to ensure we can take the item n if its weight fits in the current capacity.

Category D: Control Flow Errors

- **Incorrect loop increment**: The inner loop wrongly increments n during each iteration, which breaks the logic of processing each item sequentially.

Fixed Code:

```
public class Knapsack {


    public static void main(String[] args) {
        int N = Integer.parseInt(args[0]);   // number of items
        int W = Integer.parseInt(args[1]);   // maximum weight of knapsack
```

```
        int[] profit = new int[N+1];
        int[] weight = new int[N+1];

        // generate random instance, items 1..N
        for (int n = 1; n <= N; n++) {
            profit[n] = (int) (Math.random() * 1000);
            weight[n] = (int) (Math.random() * W);
        }

        // opt[n][w] = max profit of packing items 1..n with weight limit
w
        // sol[n][w] = does optimal solution to pack items 1..n with
weight limit w include item n?
        int[][] opt = new int[N+1][W+1];
        boolean[][] sol = new boolean[N+1][W+1];

        for (int n = 1; n <= N; n++) {
            for (int w = 1; w <= W; w++) {

                // don't take item n
                int option1 = opt[n-1][w]; // Fixed: do not increment `n`

                // take item n
                int option2 = Integer.MIN_VALUE;
                if (weight[n] <= w) {  // Fixed: condition for taking the
item
                    option2 = profit[n] + opt[n-1][w - weight[n]];  //
Fixed: correct index and formula
                }

                // select better of two options
```

```
                opt[n][w] = Math.max(option1, option2);
                sol[n][w] = (option2 > option1); // store whether we took
this item
            }
        }

        // determine which items to take
        boolean[] take = new boolean[N+1];
        for (int n = N, w = W; n > 0; n--) {
            if (sol[n][w]) {
                take[n] = true;
                w = w - weight[n];
            } else {
                take[n] = false;
            }
        }

        // print results
        System.out.println("Item\tProfit\tWeight\tTake");
        for (int n = 1; n <= N; n++) {
            System.out.println(n + "\t" + profit[n] + "\t" + weight[n] +
"\t" + take[n]);
        }
    }
}
```

Q4) Magic Number

Errors Detected:

Category A: Data Reference Errors

- **Incorrect inner loop condition (while(sum == 0))**: The condition should be while(sum > 0) to continue breaking down the sum of digits.

Category B: Data Declaration Errors

- **Computation for s = s * (sum / 10)**: The logic for summing digits should be s = s + (sum % 10) rather than multiplying. You want to sum digits, not multiply them.

Category C: Syntax Errors

- **Missing semicolon**: sum = sum % 10 is missing a semicolon at the end.

Fixed Code:

```
import java.util.Scanner;


public class MagicNumberCheck {
    public static void main(String[] args) {
        Scanner ob = new Scanner(System.in);
        System.out.println("Enter the number to be checked:");
        int n = ob.nextInt();
        int num = n;

        // Continuously reduce num until it becomes a single-digit number
        while (num > 9) {
            int sum = num;
            int s = 0;
            while (sum > 0) {
                s = s + (sum % 10);  // Corrected to add digits
                sum = sum / 10;  // Moving to the next digit
            }
            num = s;  // Update num to the sum of digits
        }

        // Final check for whether the number is magic
```

```
        if (num == 1) {
            System.out.println(n + " is a Magic Number.");
        } else {
            System.out.println(n + " is not a Magic Number.");
        }

        ob.close(); // Closing the scanner resource
    }
}
```

Q5 Merge Sort

Error Classification

1. **A: Data Reference Errors**
    - **Incorrect Array Handling**:
        - **Original Code**:

            int[] left = leftHalf(array+1);

            int[] right = rightHalf(array-1);

            - **Issue**: Attempting to reference the array with array + 1 and array - 1 is incorrect and leads to data reference errors.
        - **Correction**: Use Arrays.copyOfRange to properly create left and right subarrays.
2. **B: Control Flow Errors**
    - **Improper Loop Control**:
        - **Original Code**:

            merge(array, left++, right--);

            - **Issue**: Attempting to increment and decrement the array references is incorrect. This can lead to unexpected behavior or compilation errors.
        - **Correction**: Pass the left and right arrays directly to the merge function without modifying them.

3. **C: Boundary Errors**
    - **Array Indexing Issues**:
        - **Original Code**: In the merge function, ensure indices do not exceed the bounds of the left and right arrays when merging.
        - **Issue**: If the loop checks for array length incorrectly, it could lead to ArrayIndexOutOfBoundsException.
        - **Correction**: Properly check the bounds when accessing elements of the left and right arrays.
4. **D: Logical Errors**
    - **Incorrect Logic in Merge**:
        - **Original Code**: The merge logic could lead to merging errors if not correctly comparing and handling indices.
        - **Correction**: Ensure the merge function correctly compares the elements of both arrays and merges them into the result array.
5. **E: Initialization Errors**
    - **Failure to Initialize Variables**:
        - Ensure all variables are properly initialized, particularly those that store indices for the left and right arrays during merging.

Fixed-Code:

```
import java.util.Arrays;


public class MergeSort {
    public static void main(String[] args) {
        int[] list = {14, 32, 67, 76, 23, 41, 58, 85};
        System.out.println("before: " + Arrays.toString(list));
        mergeSort(list);
        System.out.println("after:  " + Arrays.toString(list));
    }


    // Places the elements of the given array into sorted order using the
merge sort algorithm.
```

```
    // post: array is in sorted (nondecreasing) order
    public static void mergeSort(int[] array) {
        if (array.length > 1) {
            // Split array into two halves
            int mid = array.length / 2;
            int[] left = Arrays.copyOfRange(array, 0, mid);
            int[] right = Arrays.copyOfRange(array, mid, array.length);

            // Recursively sort the two halves
            mergeSort(left);
            mergeSort(right);

            // Merge the sorted halves into a sorted whole
            merge(array, left, right);
        }
    }

    // Merges the given left and right arrays into the given result array.
    // pre : result is empty; left/right are sorted
    // post: result contains result of merging sorted lists;
    public static void merge(int[] result, int[] left, int[] right) {
        int i1 = 0;   // index into left array
        int i2 = 0;   // index into right array

        for (int i = 0; i < result.length; i++) {
            if (i2 >= right.length || (i1 < left.length && left[i1] <=
right[i2])) {
                result[i] = left[i1];    // take from left
                i1++;
            } else {
```

```
                result[i] = right[i2];   // take from right
                i2++;
            }
        }
    }
}
```

Q6 Multiply Matrics

Error Classification

1. **A: Data Reference Errors**
    - **Array Indexing Errors**:
        - **Original Code**:

          `sum = sum + first[c-1][c-k]*second[k-1][k-d];`
        - **Issue**: The indexing c-1 and k-1 can lead to ArrayIndexOutOfBoundsException, especially when c or k is 0.
        - **Correction**: Use first[c][k] and second[k][d].
2. **B: Control Flow Errors**
    - **Loop Control Issues**:
        - **Original Code**: The outer loops for matrix multiplication are correct in structure, but the use of incorrect indices can lead to improper calculations.
        - **Correction**: Ensure the correct loop structure for matrix multiplication.
3. **C: Initialization Errors**
    - **Uninitialized Variables**:
        - **Original Code**: sum is initialized but may contain incorrect results if reused improperly.
        - **Correction**: Always reset sum at the beginning of each product calculation.
4. **D: Logical Errors**

- **Incorrect Logic for Matrix Multiplication**:
  - **Original Code**: The logic for calculating the product is incorrect due to wrong indices and not following the proper formula for matrix multiplication.
  - **Correction**: The correct formula is:

    ```
    multiply[c][d] = sum + first[c][k] * second[k][d];
    ```

Fixed-Code:

```
import java.util.Scanner;


class MatrixMultiplication {

    public static void main(String args[]) {

        int m, n, p, q;


        Scanner in = new Scanner(System.in);

        System.out.println("Enter the number of rows and columns of first
matrix");

        m = in.nextInt();

        n = in.nextInt();


        int first[][] = new int[m][n];


        System.out.println("Enter the elements of first matrix");

        for (int c = 0; c < m; c++) {

            for (int d = 0; d < n; d++) {

                first[c][d] = in.nextInt();

            }

        }


        System.out.println("Enter the number of rows and columns of second
matrix");
```

```
        p = in.nextInt();
        q = in.nextInt();

        if (n != p) {
            System.out.println("Matrices with entered orders can't be
multiplied with each other.");
        } else {
            int second[][] = new int[p][q];
            int multiply[][] = new int[m][q];

            System.out.println("Enter the elements of second matrix");
            for (int c = 0; c < p; c++) {
                for (int d = 0; d < q; d++) {
                    second[c][d] = in.nextInt();
                }
            }

            for (int c = 0; c < m; c++) {
                for (int d = 0; d < q; d++) {
                    int sum = 0; // Reset sum for each product calculation
                    for (int k = 0; k < n; k++) {
                        sum += first[c][k] * second[k][d]; // Correct
index usage
                    }
                    multiply[c][d] = sum;
                }
            }

            System.out.println("Product of entered matrices:-");
            for (int c = 0; c < m; c++) {
```

```
                for (int d = 0; d < q; d++) {
                    System.out.print(multiply[c][d] + "\t");
                }
                System.out.print("\n");
            }
        }
        in.close(); // Close scanner
    }
}
```

Q7 Quadratic Probing

Error Classification

1. **A: Syntax Errors**
    - **Invalid Operator**:
        - **Original Code**: i + = (i + h / h--) % maxSize;
        - **Issue**: There is an extra space in + =, which is incorrect syntax.
        - **Correction**: It should be i += (h * h) % maxSize;.
2. **B: Control Flow Errors**
    - **Loop Control Issues**:
        - **Original Code**: The method for updating i in the insertion and retrieval logic uses the wrong control flow.
        - **Correction**: Ensure that h is incremented correctly and used properly in the formula for quadratic probing.
3. **C: Initialization Errors**
    - **Reinitialization of h**: The variable h is not correctly initialized before its usage.
    - **Correction**: Reset h properly in both insert and get methods.
4. **D: Logical Errors**
    - **Incorrect Logic for Hashing**: The way of calculating the hash index for probing isn't implemented correctly in some parts.
    - **Correction**: Ensure the use of h properly in the indexing formulas.

Fixed-Code:

```
import java.util.Scanner;


/** Class QuadraticProbingHashTable **/
class QuadraticProbingHashTable {
    private int currentSize, maxSize;
    private String[] keys;
    private String[] vals;

    /** Constructor **/
    public QuadraticProbingHashTable(int capacity) {
        currentSize = 0;
        maxSize = capacity;
        keys = new String[maxSize];
        vals = new String[maxSize];
    }

    /** Function to clear hash table **/
    public void makeEmpty() {
        currentSize = 0;
        keys = new String[maxSize];
        vals = new String[maxSize];
    }

    /** Function to get size of hash table **/
    public int getSize() {
        return currentSize;
    }

    /** Function to check if hash table is full **/
    public boolean isFull() {
        return currentSize == maxSize;
```

```
}

/** Function to check if hash table is empty **/
public boolean isEmpty() {
    return getSize() == 0;
}

/** Function to check if hash table contains a key **/
public boolean contains(String key) {
    return get(key) != null;
}

/** Function to get hash code of a given key **/
private int hash(String key) {
    return Math.abs(key.hashCode() % maxSize);
}

/** Function to insert key-value pair **/
public void insert(String key, String val) {
    if (isFull()) {
        System.out.println("Hash Table is full!");
        return;
    }

    int tmp = hash(key);
    int i = tmp, h = 1;

    do {
        if (keys[i] == null) {
            keys[i] = key;
            vals[i] = val;
            currentSize++;
            return;
```

```
        }
        if (keys[i].equals(key)) {
            vals[i] = val; // Update existing key
            return;
        }
        i = (tmp + h * h) % maxSize; // Quadratic probing
        h++;
    } while (i != tmp); // Avoid infinite loop
}

/** Function to get value for a given key **/
public String get(String key) {
    int i = hash(key), h = 1;

    while (keys[i] != null) {
        if (keys[i].equals(key))
            return vals[i];

        i = (i + h * h) % maxSize; // Quadratic probing
        h++;
    }
    return null;
}

/** Function to remove key and its value **/
public void remove(String key) {
    if (!contains(key))
        return;

    /** find position key and delete **/
    int i = hash(key), h = 1;

    while (!key.equals(keys[i])) {
```

```
            i = (i + h * h) % maxSize; // Quadratic probing
            h++;
        }
        keys[i] = vals[i] = null;

        /** rehash all keys **/
        for (i = (i + h * h) % maxSize; keys[i] != null; i = (i + h * h) % maxSize) {
            String tmp1 = keys[i], tmp2 = vals[i];
            keys[i] = vals[i] = null;
            currentSize--;
            insert(tmp1, tmp2); // Reinsert to maintain the hash table
        }
        currentSize--;
    }

    /** Function to print HashTable **/
    public void printHashTable() {
        System.out.println("\nHash Table: ");
        for (int i = 0; i < maxSize; i++)
            if (keys[i] != null)
                System.out.println(keys[i] + " " + vals[i]);
        System.out.println();
    }
}

/** Class QuadraticProbingHashTableTest **/
public class QuadraticProbingHashTableTest {
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        System.out.println("Hash Table Test\n\n");
        System.out.println("Enter size");

        /** make object of QuadraticProbingHashTable **/
```

```
QuadraticProbingHashTable qpht = new QuadraticProbingHashTable(scan.nextInt());


char ch;


/**  Perform QuadraticProbingHashTable operations  **/
do {
    System.out.println("\nHash Table Operations\n");
    System.out.println("1. Insert ");
    System.out.println("2. Remove");
    System.out.println("3. Get");
    System.out.println("4. Clear");
    System.out.println("5. Size");


    int choice = scan.nextInt();
    switch (choice) {
        case 1:
            System.out.println("Enter key and value");
            qpht.insert(scan.next(), scan.next());
            break;
        case 2:
            System.out.println("Enter key");
            qpht.remove(scan.next());
            break;
        case 3:
            System.out.println("Enter key");
            System.out.println("Value = " + qpht.get(scan.next()));
            break;
        case 4:
            qpht.makeEmpty();
            System.out.println("Hash Table Cleared\n");
            break;
        case 5:
            System.out.println("Size = " + qpht.getSize());
```

```
                    break;
                default:
                    System.out.println("Wrong Entry \n ");
                    break;
            }

            /** Display hash table **/
            qpht.printHashTable();

            System.out.println("\nDo you want to continue (Type y or n) \n");
            ch = scan.next().charAt(0);
        } while (ch == 'Y' || ch == 'y');

        scan.close(); // Close the scanner
    }
}
```

Q8 Sorting array

Error Classification

1. **A: Syntax Errors**
    - **Class Name Issue**:
        - **Original Code**: The class name Ascending _Order has an invalid space.
        - **Correction**: Change to AscendingOrder.
    - **Semicolon After for Loop**:
        - **Original Code**:

          for (int i = 0; i >= n; i++);
        - **Issue**: The condition i >= n should be i < n, and the semicolon after the for loop causes it to terminate prematurely.
        - **Correction**: Remove the semicolon and change the condition.
2. **B: Logic Errors**
    - **Sorting Logic**: The current sorting logic is incorrect. The condition for sorting should be modified to ensure proper ascending order.

- **Correction**: The condition should be if (a[i] > a[j]).

3. **C: Output Formatting**
    - **Extra Comma Issue**: When printing the sorted array, the formatting has an extra comma before the last element.
    - **Correction**: Adjust the loop for printing to avoid an extra comma.

Fixed Code:

```
import java.util.Scanner;


public class AscendingOrder {
    public static void main(String[] args) {
        int n, temp;
        Scanner s = new Scanner(System.in);
        System.out.print("Enter number of elements you want in array: ");
        n = s.nextInt();
        int a[] = new int[n];
        System.out.println("Enter all the elements:");
        for (int i = 0; i < n; i++) {
            a[i] = s.nextInt();
        }


        // Sort the array in ascending order
        for (int i = 0; i < n - 1; i++) {
            for (int j = i + 1; j < n; j++) {
                if (a[i] > a[j]) { // Change this line to sort in
ascending order
                    temp = a[i];
                    a[i] = a[j];
                    a[j] = temp;
                }
            }
```

```
        }


        System.out.print("Ascending Order: ");
        for (int i = 0; i < n; i++) {
            System.out.print(a[i]);
            if (i < n - 1) {
                System.out.print(", ");
            }
        }
    }
}
```

Q9 Stack Implementation

Error Classification

1. **A: Logic Errors**
    - **Push Method Logic**: The push method decreases top before adding a value to the stack. This should be reversed; you need to increase top after checking if the stack is not full.
    - **Pop Method Logic**: The pop method increments top, which should actually be decrementing top to retrieve the last added element.
    - **Display Logic**: The loop condition in the display method is incorrect. It uses i > top, which should be i <= top to display all elements in the stack.
2. **B: Index Out of Bounds Errors**
    - **Push and Pop Methods**: The logic in both methods needs to ensure that they do not access invalid indices.
3. **C: Unused Import Statement**
    - The import statement for java.util.Arrays is not necessary since you are not using any array utilities.

Fixed-Code:

```
public class StackMethods {
    private int top;
    int size;
```

```
int[] stack;

public StackMethods(int arraySize) {
    size = arraySize;
    stack = new int[size];
    top = -1;
}

public void push(int value) {
    if (top == size - 1) {
        System.out.println("Stack is full, can't push a value");
    } else {
        top++;  // Increase top to point to the next empty spot
        stack[top] = value;  // Assign the value at the top
    }
}

public void pop() {
    if (!isEmpty()) {
        System.out.println("Popped: " + stack[top]);  // Show the value being popped
        top--;  // Decrease top to remove the top element
    } else {
        System.out.println("Can't pop...stack is empty");
    }
}

public boolean isEmpty() {
    return top == -1;
}

public void display() {
    if (isEmpty()) {
        System.out.println("Stack is empty.");
    } else {
        System.out.print("Stack elements: ");
        for (int i = 0; i <= top; i++) {  // Use <= to include top
```

```
                System.out.print(stack[i] + " ");
            }
            System.out.println();
        }
    }
}


public class StackReviseDemo {
    public static void main(String[] args) {
        StackMethods newStack = new StackMethods(5);
        newStack.push(10);
        newStack.push(1);
        newStack.push(50);
        newStack.push(20);
        newStack.push(90);


        newStack.display();
        newStack.pop();
        newStack.pop();
        newStack.pop();
        newStack.pop();
        newStack.display();
    }
}
```

Q10 Tower of Hanoi

Error Classification

1. **A: Logic Errors**
    - **Recursion Call**: In the recursive calls to doTowers, the parameters topN ++, inter--, from + 1, and to + 1 are incorrect.
        - topN ++ should simply be topN - 1.
        - inter-- should remain the same as inter since it is a character, and should not be decremented.

- from + 1 and to + 1 should not be modified because they represent characters (source and destination pegs) and need to remain unchanged.

2. **B: Infinite Recursion**
    - The logic in the recursive function is flawed due to the misuse of increment and decrement operators, which would cause the recursion not to terminate properly.

Fixed Code:

```
public class MainClass {
    public static void main(String[] args) {
        int nDisks = 3; // Number of disks
        doTowers(nDisks, 'A', 'B', 'C'); // A, B, and C are the names of the rods
    }

    public static void doTowers(int topN, char from, char inter, char to) {
        if (topN == 1) {
            System.out.println("Disk 1 from " + from + " to " + to);
        } else {
            doTowers(topN - 1, from, to, inter); // Move topN-1 disks from 'from' to 'inter'
            System.out.println("Disk " + topN + " from " + from + " to " + to); // Move the nth disk
            doTowers(topN - 1, inter, from, to); // Move the topN-1 disks from 'inter' to 'to'
        }
    }
}
```

2000 LOC Code: https://github.com/kdave12/15112-TermProject-2000-lines-of-Python-code/blob/master/termProject.py

```
PYLINT report:
************* Module termProject
termProject.py:3:13: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:41:11: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:51:18: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:66:10: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:72:30: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:86:35: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:87:35: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:90:0: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:96:34: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:97:34: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:106:24: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:108:27: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:141:25: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:142:25: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:145:12: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:154:29: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:169:25: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:173:12: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:174:23: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:175:27: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:176:30: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:184:11: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:185:26: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:186:31: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:187:28: C0303: Trailing whitespace (trailing-whitespace)
```

```
termProject.py:194:0: C0325: Unnecessary parens after 'if' keyword
(superfluous-parens)

termProject.py:195:38: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:195:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:196:0: W0311: Bad indentation. Found 12 spaces, expected 8
(bad-indentation)

termProject.py:197:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:198:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:199:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:200:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:201:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:205:0: C0325: Unnecessary parens after 'if' keyword
(superfluous-parens)

termProject.py:206:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:207:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:208:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:209:69: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:209:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:210:67: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:210:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:211:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:214:0: C0325: Unnecessary parens after 'if' keyword
(superfluous-parens)
```

```
termProject.py:217:0: C0325: Unnecessary parens after 'if' keyword
(superfluous-parens)

termProject.py:220:0: C0325: Unnecessary parens after 'if' keyword
(superfluous-parens)

termProject.py:221:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:222:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:223:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:224:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:225:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:226:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:229:0: C0325: Unnecessary parens after 'if' keyword
(superfluous-parens)

termProject.py:230:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:231:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:232:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:233:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:234:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:235:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:268:55: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:269:61: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:271:59: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:272:63: C0303: Trailing whitespace (trailing-whitespace)
```

```
termProject.py:274:65: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:300:62: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:308:65: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:309:58: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:318:75: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:321:63: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:338:33: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:356:0: C0325: Unnecessary parens after 'if' keyword
(superfluous-parens)
termProject.py:376:61: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:380:73: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:381:22: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:384:35: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:392:71: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:394:23: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:406:75: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:409:63: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:414:47: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:419:47: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:424:49: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:431:47: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:436:49: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:441:49: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:446:22: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:448:75: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:450:71: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:454:51: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:457:30: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:467:27: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:468:65: C0303: Trailing whitespace (trailing-whitespace)
```

```
termProject.py:475:43: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:478:58: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:482:58: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:490:61: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:495:26: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:496:49: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:504:27: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:521:14: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:523:53: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:524:50: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:526:51: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:527:48: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:529:53: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:530:50: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:531:37: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:534:69: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:536:66: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:538:69: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:547:56: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:548:71: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:550:69: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:552:53: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:553:68: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:555:70: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:557:0: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:560:12: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:563:12: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:566:20: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:570:10: C0303: Trailing whitespace (trailing-whitespace)
```

```
termProject.py:578:63: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:587:49: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:588:55: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:589:53: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:591:32: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:592:34: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:594:72: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:599:30: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:603:34: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:612:66: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:617:50: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:623:32: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:626:75: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:631:67: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:636:42: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:647:32: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:648:31: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:656:18: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:657:13: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:667:51: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:668:35: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:672:8: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:677:62: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:681:0: C0325: Unnecessary parens after 'if' keyword
(superfluous-parens)
termProject.py:683:41: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:686:0: C0325: Unnecessary parens after 'if' keyword
(superfluous-parens)
termProject.py:688:60: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:690:32: C0303: Trailing whitespace (trailing-whitespace)
```

```
termProject.py:703:33: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:706:74: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:708:46: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:718:38: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:746:0: C0301: Line too long (111/100) (line-too-long)
termProject.py:754:64: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:761:62: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:793:18: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:795:26: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:796:70: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:798:56: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:800:72: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:802:57: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:803:61: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:805:60: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:806:42: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:814:78: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:819:65: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:820:55: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:822:64: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:826:0: W0311: Bad indentation. Found 8 spaces, expected 4
(bad-indentation)
termProject.py:827:0: W0311: Bad indentation. Found 8 spaces, expected 4
(bad-indentation)
termProject.py:828:45: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:829:54: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:841:27: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:843:33: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:850:15: C0303: Trailing whitespace (trailing-whitespace)
```

```
termProject.py:852:0: W0311: Bad indentation. Found 12 spaces, expected 8 (bad-indentation)
termProject.py:853:0: W0311: Bad indentation. Found 12 spaces, expected 8 (bad-indentation)
termProject.py:854:0: W0311: Bad indentation. Found 16 spaces, expected 12 (bad-indentation)
termProject.py:856:43: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:863:13: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:886:68: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:894:45: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:900:34: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:929:64: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:936:70: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:940:65: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:949:18: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:952:80: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:953:55: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:955:64: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:957:64: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:965:43: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:972:13: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:973:38: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:979:43: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:980:31: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:982:34: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:988:63: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:991:33: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1001:30: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1004:23: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1025:10: C0303: Trailing whitespace (trailing-whitespace)
```

```
termProject.py:1027:22: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1039:74: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1041:46: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1052:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)
termProject.py:1054:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)
termProject.py:1058:38: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1075:0: C0301: Line too long (111/100) (line-too-long)
termProject.py:1085:18: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1087:22: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1088:70: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1091:72: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1093:57: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1094:61: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1096:60: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1097:42: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1101:34: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1102:14: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1105:71: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1109:66: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1111:79: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1116:95: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1121:12: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1126:13: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1129:34: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1138:27: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1147:63: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1153:26: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1154:51: C0303: Trailing whitespace (trailing-whitespace)
```

```
termProject.py:1162:56: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1163:71: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1165:69: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1179:26: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1180:49: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1186:65: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1190:26: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1191:49: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1197:68: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1203:75: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1205:58: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1211:69: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1213:78: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1214:75: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1215:69: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1217:74: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1226:0: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1228:12: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1233:63: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1248:25: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1258:74: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1260:46: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1278:40: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1296:0: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1299:0: C0301: Line too long (112/100) (line-too-long)
termProject.py:1304:68: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1307:52: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1318:74: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1320:46: C0303: Trailing whitespace (trailing-whitespace)
```

```
termProject.py:1331:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:1333:0: C0325: Unnecessary parens after 'elif' keyword
(superfluous-parens)

termProject.py:1337:40: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1357:0: C0301: Line too long (112/100) (line-too-long)

termProject.py:1371:95: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1384:35: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1387:46: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1391:14: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1393:42: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1396:67: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1397:75: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1398:78: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1399:14: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1405:94: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1406:0: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1418:35: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1421:46: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1442:0: W0311: Bad indentation. Found 12 spaces, expected 8
(bad-indentation)

termProject.py:1443:0: W0311: Bad indentation. Found 16 spaces, expected
12 (bad-indentation)

termProject.py:1443:0: C0325: Unnecessary parens after 'if' keyword
(superfluous-parens)

termProject.py:1444:0: W0311: Bad indentation. Found 20 spaces, expected
16 (bad-indentation)

termProject.py:1445:0: W0311: Bad indentation. Found 24 spaces, expected
20 (bad-indentation)

termProject.py:1446:0: W0311: Bad indentation. Found 24 spaces, expected
20 (bad-indentation)

termProject.py:1451:34: C0303: Trailing whitespace (trailing-whitespace)
```

```
termProject.py:1462:0: W0311: Bad indentation. Found 12 spaces, expected 8
(bad-indentation)

termProject.py:1463:0: W0311: Bad indentation. Found 16 spaces, expected
12 (bad-indentation)

termProject.py:1463:0: C0325: Unnecessary parens after 'if' keyword
(superfluous-parens)

termProject.py:1464:0: W0311: Bad indentation. Found 20 spaces, expected
16 (bad-indentation)

termProject.py:1465:0: W0311: Bad indentation. Found 24 spaces, expected
20 (bad-indentation)

termProject.py:1466:0: W0311: Bad indentation. Found 24 spaces, expected
20 (bad-indentation)

termProject.py:1468:0: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1472:34: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1483:0: W0311: Bad indentation. Found 12 spaces, expected 8
(bad-indentation)

termProject.py:1484:0: W0311: Bad indentation. Found 16 spaces, expected
12 (bad-indentation)

termProject.py:1484:0: C0325: Unnecessary parens after 'if' keyword
(superfluous-parens)

termProject.py:1485:0: W0311: Bad indentation. Found 20 spaces, expected
16 (bad-indentation)

termProject.py:1486:0: W0311: Bad indentation. Found 24 spaces, expected
20 (bad-indentation)

termProject.py:1487:0: W0311: Bad indentation. Found 24 spaces, expected
20 (bad-indentation)

termProject.py:1492:34: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1502:0: W0311: Bad indentation. Found 12 spaces, expected 8
(bad-indentation)

termProject.py:1503:0: W0311: Bad indentation. Found 16 spaces, expected
12 (bad-indentation)

termProject.py:1503:0: C0325: Unnecessary parens after 'if' keyword
(superfluous-parens)

termProject.py:1504:0: W0311: Bad indentation. Found 20 spaces, expected
16 (bad-indentation)
```

```
termProject.py:1505:0: W0311: Bad indentation. Found 24 spaces, expected 20 (bad-indentation)

termProject.py:1506:0: W0311: Bad indentation. Found 24 spaces, expected 20 (bad-indentation)

termProject.py:1511:34: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1522:0: W0311: Bad indentation. Found 12 spaces, expected 8 (bad-indentation)

termProject.py:1523:0: W0311: Bad indentation. Found 16 spaces, expected 12 (bad-indentation)

termProject.py:1523:0: C0325: Unnecessary parens after 'if' keyword (superfluous-parens)

termProject.py:1524:0: W0311: Bad indentation. Found 20 spaces, expected 16 (bad-indentation)

termProject.py:1525:0: W0311: Bad indentation. Found 24 spaces, expected 20 (bad-indentation)

termProject.py:1526:0: W0311: Bad indentation. Found 24 spaces, expected 20 (bad-indentation)

termProject.py:1532:34: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1534:36: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1538:33: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1540:29: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1542:17: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1547:28: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1561:25: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1569:27: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1587:64: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1596:64: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1601:56: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1602:86: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1609:56: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1614:62: C0303: Trailing whitespace (trailing-whitespace)

termProject.py:1630:36: C0303: Trailing whitespace (trailing-whitespace)
```

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termProject.py:1634:34: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1649:23: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1655:15: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1657:18: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1661:0: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1662:19: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1697:42: C0303: Trailing whitespace (trailing-whitespace)
termProject.py:1:0: C0302: Too many lines in module (1708/1000) (too-many-
lines)
termProject.py:1708:0: C0305: Trailing newlines (trailing-newlines)
termProject.py:1:0: C0103: Module name "termProject" doesn't conform to
snake_case naming style (invalid-name)
termProject.py:36:0: W0401: Wildcard import tkinter (wildcard-import)
termProject.py:39:0: W0404: Reimport 'Image' (imported line 38)
(reimported)
termProject.py:47:0: C0116: Missing function or method docstring (missing-
function-docstring)
termProject.py:47:0: R0915: Too many statements (102/50) (too-many-
statements)
termProject.py:193:0: C0116: Missing function or method docstring
(missing-function-docstring)
termProject.py:193:0: C0103: Function name "mousePressed" doesn't conform
to snake_case naming style (invalid-name)
termProject.py:194:31: C0321: More than one statement on a single line
(multiple-statements)
termProject.py:197:36: C0321: More than one statement on a single line
(multiple-statements)
termProject.py:198:34: C0321: More than one statement on a single line
(multiple-statements)
termProject.py:199:37: C0321: More than one statement on a single line
(multiple-statements)
termProject.py:200:37: C0321: More than one statement on a single line
(multiple-statements)
```

```
termProject.py:201:38: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:204:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:204:0: C0103: Function name "keyPressed" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:205:31: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:206:41: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:207:33: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:208:31: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:209:40: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:210:39: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:211:38: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:213:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:213:0: C0103: Function name "mouseMotion" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:214:32: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:216:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:216:0: C0103: Function name "mouseRelease" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:217:32: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:219:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:219:0: C0103: Function name "timerFired" doesn't conform to
snake_case naming style (invalid-name)
```

```
termProject.py:220:31: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:221:41: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:222:36: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:223:34: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:224:40: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:225:39: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:226:38: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:228:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:228:0: C0103: Function name "redrawAll" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:229:31: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:230:41: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:231:36: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:232:34: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:233:40: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:234:39: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:235:38: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:242:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:242:0: C0103: Function name "loadBackground" doesn't
conform to snake_case naming style (invalid-name)
```

```
termProject.py:246:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:246:0: C0103: Function name "loadAnim1" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:250:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:250:0: C0103: Function name "loadAnim2" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:254:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:254:0: C0103: Function name "loadAnim3" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:258:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:258:0: C0103: Function name "loadAnim4" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:262:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:262:0: C0103: Function name "getDistance" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:266:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:266:0: C0103: Function name "introMousePressed" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:278:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:278:0: C0103: Function name "introKeyPressed" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:278:20: W0613: Unused argument 'event' (unused-argument)

termProject.py:278:27: W0613: Unused argument 'data' (unused-argument)

termProject.py:281:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:281:0: C0103: Function name "introTimerFired" doesn't
conform to snake_case naming style (invalid-name)
```

```
termProject.py:298:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:298:0: C0103: Function name "drawConstructor" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:307:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:307:0: C0103: Function name "drawSolver" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:316:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:316:0: C0103: Function name "drawHelper" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:325:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:325:0: C0103: Function name "drawAnimations" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:331:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:331:0: C0103: Function name "introRedrawAll" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:348:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:348:0: C0103: Function name "loadInstructions" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:352:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:352:0: C0103: Function name "helpMousePressed" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:352:21: W0613: Unused argument 'event' (unused-argument)

termProject.py:352:28: W0613: Unused argument 'data' (unused-argument)

termProject.py:355:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:355:0: C0103: Function name "helpKeyPressed" doesn't
conform to snake_case naming style (invalid-name)
```

```
termProject.py:359:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:359:0: C0103: Function name "helpTimerFired" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:359:19: W0613: Unused argument 'data' (unused-argument)

termProject.py:362:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:362:0: C0103: Function name "helpRedrawAll" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:372:0: C0413: Import "from tkinter import filedialog"
should be placed at the top of the module (wrong-import-position)

termProject.py:374:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:374:0: C0103: Function name "loadConBackground" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:379:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:379:0: C0103: Function name "drawOutline" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:384:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:384:0: C0103: Function name "drawLevelOutline" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:393:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:393:0: C0103: Function name "drawPhotoOutline" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:404:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:404:0: C0103: Function name "drawBack" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:413:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:413:0: C0103: Function name "checkLevelSelect" doesn't
conform to snake_case naming style (invalid-name)
```

```
termProject.py:413:34: W0613: Unused argument 'canvas' (unused-argument)

termProject.py:430:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:430:0: C0103: Function name "checkPhotoSelect" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:430:34: W0613: Unused argument 'canvas' (unused-argument)

termProject.py:447:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:447:0: C0103: Function name "drawButton" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:453:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:453:0: C0103: Function name "checkButtonPressed" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:460:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:460:0: C0103: Function name "constructorMousePressed"
doesn't conform to snake_case naming style (invalid-name)

termProject.py:476:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:476:0: C0103: Function name "loadImg1" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:480:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:480:0: C0103: Function name "loadImg2" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:484:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:484:0: C0103: Function name "loadImg3" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:488:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:488:0: C0103: Function name "loadFinalImage" doesn't
conform to snake_case naming style (invalid-name)
```

```
termProject.py:493:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:493:0: C0103: Function name "uploadImage" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:505:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:505:0: C0103: Function name "drawImages" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:515:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:515:0: C0103: Function name "constructorKeyPressed" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:515:26: W0613: Unused argument 'event' (unused-argument)

termProject.py:515:33: W0613: Unused argument 'data' (unused-argument)

termProject.py:518:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:518:0: C0103: Function name "constructorTimerFired" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:518:26: W0613: Unused argument 'data' (unused-argument)

termProject.py:522:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:522:0: C0103: Function name "drawLevels" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:541:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:541:0: C0103: Function name "drawNext" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:558:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:558:0: C0103: Function name "constructorRedrawAll" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:577:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:577:0: C0103: Function name "gridMousePressed" doesn't
conform to snake_case naming style (invalid-name)
```

```
termProject.py:604:12: W0621: Redefining name 'piece' from outer scope
(line 864) (redefined-outer-name)

termProject.py:596:7: C0121: Comparison 'data.solved == True' should be
'data.solved is True' if checking for the singleton value True, or
'data.solved' if testing for truthiness (singleton-comparison)

termProject.py:603:7: C0121: Comparison 'data.gridSelectP1 == False'
should be 'data.gridSelectP1 is False' if checking for the singleton value
False, or 'not data.gridSelectP1' if testing for falsiness (singleton-
comparison)

termProject.py:613:8: C0121: Comparison 'data.gridSelectP1 == True' should
be 'data.gridSelectP1 is True' if checking for the singleton value True,
or 'bool(data.gridSelectP1)' if testing for truthiness (singleton-
comparison)

termProject.py:613:38: C0121: Comparison 'data.gridSelectP2 == False'
should be 'data.gridSelectP2 is False' if checking for the singleton value
False, or 'not data.gridSelectP2' if testing for falsiness (singleton-
comparison)

termProject.py:577:0: R0912: Too many branches (14/12) (too-many-branches)

termProject.py:624:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:624:0: C0103: Function name "makeOutline1" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:629:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:629:0: C0103: Function name "makeOutline2" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:635:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:635:0: C0103: Function name "makeMove" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:636:7: R1714: Consider merging these comparisons with 'in'
by using 'data.level in (1, 2)'. Use a set instead if elements are
hashable. (consider-using-in)

termProject.py:639:8: C0103: Variable name "tempX1" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:639:16: C0103: Variable name "tempX2" doesn't conform to
snake_case naming style (invalid-name)
```

```
termProject.py:639:24: C0103: Variable name "tempY1" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:639:32: C0103: Variable name "tempY2" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:650:12: R0916: Too many boolean expressions in if statement
(6/5) (too-many-boolean-expressions)

termProject.py:650:8: R1705: Unnecessary "else" after "return", remove the
"else" and de-indent the code inside it (no-else-return)

termProject.py:650:13: R1714: Consider merging these comparisons with 'in'
by using 'p2.cx1 not in (p1.cx1 + w, p1.cx1 - w, p1.cx1)'. Use a set
instead if elements are hashable. (consider-using-in)

termProject.py:651:13: R1714: Consider merging these comparisons with 'in'
by using 'p2.cy1 not in (p1.cy1 + h, p1.cy1 - h, p1.cy1)'. Use a set
instead if elements are hashable. (consider-using-in)

termProject.py:660:12: C0103: Variable name "tempX1" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:660:20: C0103: Variable name "tempX2" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:660:28: C0103: Variable name "tempY1" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:660:36: C0103: Variable name "tempY2" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:666:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:666:0: C0103: Function name "showErrorScreen" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:671:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:671:0: C0103: Function name "gridKeyPressed" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:671:19: W0613: Unused argument 'event' (unused-argument)

termProject.py:671:26: W0613: Unused argument 'data' (unused-argument)

termProject.py:674:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:674:0: C0103: Function name "gridTimerFired" doesn't
conform to snake_case naming style (invalid-name)
```

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termProject.py:688:39: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:690:7: C0121: Comparison 'data.gridSolved == False' should
be 'data.gridSolved is False' if checking for the singleton value False,
or 'not data.gridSolved' if testing for falsiness (singleton-comparison)

termProject.py:694:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:694:0: C0103: Function name "makeGridPieces" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:694:0: R0914: Too many local variables (28/15) (too-many-
locals)

termProject.py:699:8: C0103: Variable name "stepHor" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:699:17: C0103: Variable name "stepVer" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:703:8: C0103: Variable name "stepHor" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:703:17: C0103: Variable name "stepVer" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:721:4: C0103: Variable name "picNum" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:724:4: C0103: Variable name "startPositions" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:734:12: C0103: Variable name "finalPosition" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:735:12: C0103: Variable name "randIndex" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:736:12: C0103: Variable name "randPos" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:739:12: C0103: Variable name "currPosition" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:741:12: C0103: Variable name "pieceImg" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:742:12: C0103: Variable name "picName" doesn't conform to
snake_case naming style (invalid-name)
```

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termProject.py:742:22: C0209: Formatting a regular string which could be
an f-string (consider-using-f-string)

termProject.py:744:12: C0103: Variable name "pieceImport" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:745:12: C0103: Variable name "picNum" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:749:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:749:0: C0103: Function name "drawPieces" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:750:8: W0621: Redefining name 'piece' from outer scope
(line 864) (redefined-outer-name)

termProject.py:753:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:753:0: C0103: Function name "drawDashboard" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:756:4: C0103: Variable name "imgWidth" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:757:4: C0103: Variable name "imgHeight" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:764:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:764:0: C0103: Function name "checkgridImage" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:764:25: W0613: Unused argument 'canvas' (unused-argument)

termProject.py:780:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:783:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:786:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:790:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:790:0: C0103: Function name "checkForWinGrid" doesn't
conform to snake_case naming style (invalid-name)
```

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termProject.py:791:8: W0621: Redefining name 'piece' from outer scope
(line 864) (redefined-outer-name)

termProject.py:798:4: C0103: Variable name "gameTime" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:809:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:809:0: C0103: Function name "drawGridHint" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:817:8: C0103: Variable name "textHint" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:818:10: C0103: Variable name "textHint" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:825:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:825:0: C0103: Function name "drawHintImage" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:832:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:832:0: C0103: Function name "gridRedrawAll" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:835:7: C0121: Comparison 'data.piecesMade == False' should
be 'data.piecesMade is False' if checking for the singleton value False,
or 'not data.piecesMade' if testing for falsiness (singleton-comparison)

termProject.py:843:7: C0121: Comparison 'data.gridSelectP1 == True' should
be 'data.gridSelectP1 is True' if checking for the singleton value True,
or 'data.gridSelectP1' if testing for truthiness (singleton-comparison)

termProject.py:846:7: C0121: Comparison 'data.gridSelectP2 == True' should
be 'data.gridSelectP2 is True' if checking for the singleton value True,
or 'data.gridSelectP2' if testing for truthiness (singleton-comparison)

termProject.py:851:7: C0121: Comparison 'data.gridSolved == False' should
be 'data.gridSolved is False' if checking for the singleton value False,
or 'not data.gridSolved' if testing for falsiness (singleton-comparison)

termProject.py:853:15: C0121: Comparison 'data.gridHint == True' should be
'data.gridHint is True' if checking for the singleton value True, or
'data.gridHint' if testing for truthiness (singleton-comparison)

termProject.py:864:0: C0115: Missing class docstring (missing-class-
docstring)
```

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termProject.py:864:0: C0103: Class name "piece" doesn't conform to
PascalCase naming style (invalid-name)

termProject.py:872:8: C0103: Attribute name "finalPos" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:878:8: C0103: Attribute name "currPos" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:864:0: R0205: Class 'piece' inherits from object, can be
safely removed from bases in python3 (useless-object-inheritance)

termProject.py:864:0: R0902: Too many instance attributes (14/7) (too-
many-instance-attributes)

termProject.py:867:42: C0103: Argument name "finalPos" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:867:52: C0103: Argument name "currPos" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:885:4: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:885:4: C0103: Method name "containsPoint" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:888:4: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:888:4: C0103: Method name "changePos" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:895:4: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:899:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:899:0: C0103: Function name "checkPuzzleImage" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:899:27: W0613: Unused argument 'canvas' (unused-argument)

termProject.py:915:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:915:0: C0103: Function name "loadPuzzle1" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:919:0: C0116: Missing function or method docstring
(missing-function-docstring)
```

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termProject.py:919:0: C0103: Function name "loadPuzzle2" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:923:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:923:0: C0103: Function name "loadPuzzle3" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:928:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:928:0: C0103: Function name "displayDashboard" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:931:4: C0103: Variable name "imgWidth" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:932:4: C0103: Variable name "imgHeight" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:939:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:939:0: C0103: Function name "displayFinalPuzzle" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:944:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:944:0: C0103: Function name "giveHint" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:945:8: W0621: Redefining name 'piece' from outer scope
(line 864) (redefined-outer-name)

termProject.py:944:19: W0613: Unused argument 'canvas' (unused-argument)

termProject.py:951:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:951:0: C0103: Function name "drawHintPiece" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:952:9: C0121: Comparison 'data.hintPiece != None' should be
'data.hintPiece is not None' (singleton-comparison)

termProject.py:954:8: C0103: Variable name "Piece" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:960:0: C0116: Missing function or method docstring
(missing-function-docstring)
```

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termProject.py:960:0: C0103: Function name "puzzleMouseRelease" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:961:7: C0121: Comparison 'data.selectBool == True' should
be 'data.selectBool is True' if checking for the singleton value True, or
'data.selectBool' if testing for truthiness (singleton-comparison)

termProject.py:962:8: C0103: Variable name "currPiece" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:960:23: W0613: Unused argument 'canvas' (unused-argument)

termProject.py:979:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:979:0: C0103: Function name "puzzleMouseMotion" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:980:7: C0121: Comparison 'data.selectBool == True' should
be 'data.selectBool is True' if checking for the singleton value True, or
'data.selectBool' if testing for truthiness (singleton-comparison)

termProject.py:981:8: C0103: Variable name "currPiece" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:979:22: W0613: Unused argument 'canvas' (unused-argument)

termProject.py:987:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:987:0: C0103: Function name "puzzleMousePressed" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:1026:8: W0621: Redefining name 'piece' from outer scope
(line 864) (redefined-outer-name)

termProject.py:998:7: C0121: Comparison 'data.solved == True' should be
'data.solved is True' if checking for the singleton value True, or
'data.solved' if testing for truthiness (singleton-comparison)

termProject.py:1005:4: W0105: String statement has no effect (pointless-
string-statement)

termProject.py:1034:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1034:0: C0103: Function name "makePieces" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:1034:0: R0914: Too many local variables (25/15) (too-many-
locals)
```

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termProject.py:1038:4: C0103: Variable name "stepHor" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:1038:13: C0103: Variable name "stepVer" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:1060:4: C0103: Variable name "picNum" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:1064:12: C0103: Variable name "finalPosition" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:1067:12: C0103: Variable name "currPosition" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:1070:12: C0103: Variable name "pieceImg" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:1071:12: C0103: Variable name "picName" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:1071:22: C0209: Formatting a regular string which could be
an f-string (consider-using-f-string)

termProject.py:1073:12: C0103: Variable name "pieceImport" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:1074:12: C0103: Variable name "picNum" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:1077:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1077:0: C0103: Function name "drawPieces" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:1077:0: E0102: function already defined line 749 (function-
redefined)

termProject.py:1078:8: W0621: Redefining name 'piece' from outer scope
(line 864) (redefined-outer-name)

termProject.py:1082:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1082:0: C0103: Function name "checkForWin" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:1083:8: W0621: Redefining name 'piece' from outer scope
(line 864) (redefined-outer-name)

termProject.py:1090:4: C0103: Variable name "gameTime" doesn't conform to
snake_case naming style (invalid-name)
```

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termProject.py:1100:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1100:0: C0103: Function name "drawOutlineCurrPiece" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:1101:4: R1705: Unnecessary "elif" after "return", remove
the leading "el" from "elif" (no-else-return)

termProject.py:1101:7: C0121: Comparison 'data.pieceSelected == None'
should be 'data.pieceSelected is None' (singleton-comparison)

termProject.py:1103:9: C0121: Comparison 'data.selectBool == True' should
be 'data.selectBool is True' if checking for the singleton value True, or
'data.selectBool' if testing for truthiness (singleton-comparison)

termProject.py:1108:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1108:0: C0103: Function name "drawHint" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:1114:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1114:0: C0103: Function name "drawTimer" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:1115:4: C0103: Variable name "gameTime" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:1119:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1119:0: C0103: Function name "puzzleRedrawAll" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:1123:7: C0121: Comparison 'data.piecesMade == False' should
be 'data.piecesMade is False' if checking for the singleton value False,
or 'not data.piecesMade' if testing for falsiness (singleton-comparison)

termProject.py:1136:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1136:0: C0103: Function name "puzzleKeyPressed" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:1136:35: C0321: More than one statement on a single line
(multiple-statements)

termProject.py:1136:21: W0613: Unused argument 'event' (unused-argument)

termProject.py:1136:28: W0613: Unused argument 'data' (unused-argument)
```

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termProject.py:1138:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1138:0: C0103: Function name "puzzleTimerFired" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:1139:7: C0121: Comparison 'data.solved == False' should be
'data.solved is False' if checking for the singleton value False, or 'not
data.solved' if testing for falsiness (singleton-comparison)

termProject.py:1146:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1146:0: C0103: Function name "solverMousePressed" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:1161:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1161:0: C0103: Function name "drawSolve" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:1168:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1168:0: C0103: Function name "solverKeyPressed" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:1168:21: W0613: Unused argument 'event' (unused-argument)

termProject.py:1171:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1171:0: C0103: Function name "solverTimerFired" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:1171:21: W0613: Unused argument 'data' (unused-argument)

termProject.py:1177:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1177:0: C0103: Function name "uploadFinal" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:1188:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1188:0: C0103: Function name "uploadShuffled" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:1199:0: C0116: Missing function or method docstring
(missing-function-docstring)
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termProject.py:1199:0: C0103: Function name "drawUploadTexts" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:1210:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1210:0: C0103: Function name "drawUploadBoxes" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:1220:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1220:0: C0103: Function name "solverRedrawAll" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:1232:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1232:0: C0103: Function name "finalMousePressed" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:1238:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1238:14: W0613: Unused argument 'canvas' (unused-argument)

termProject.py:1238:22: W0613: Unused argument 'data' (unused-argument)

termProject.py:1241:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1241:0: C0103: Function name "edgeDetection" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:1241:18: W0613: Unused argument 'canvas' (unused-argument)

termProject.py:1241:26: W0613: Unused argument 'data' (unused-argument)

termProject.py:1244:0: W0404: Reimport 'Image' (imported line 38)
(reimported)

termProject.py:1244:0: W0404: Reimport 'ImageFont' (imported line 38)
(reimported)

termProject.py:1244:0: W0404: Reimport 'ImageDraw' (imported line 38)
(reimported)

termProject.py:1244:0: C0413: Import "from PIL import Image, ImageFont,
ImageDraw" should be placed at the top of the module (wrong-import-
position)

termProject.py:1247:0: C0116: Missing function or method docstring
(missing-function-docstring)
```

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termProject.py:1247:0: C0103: Function name "finalPuzzleNumbering" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1247:0: R0914: Too many local variables (28/15) (too-many-locals)

termProject.py:1257:4: C0103: Variable name "stepHor" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1257:13: C0103: Variable name "stepVer" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1281:4: C0103: Variable name "picNum" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1282:4: C0103: Variable name "dashboardPos" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1288:12: C0103: Variable name "pieceImg" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1289:12: C0103: Variable name "picName" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1289:22: C0209: Formatting a regular string which could be an f-string (consider-using-f-string)

termProject.py:1293:12: C0103: Variable name "WHITE" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1297:12: C0103: Variable name "pieceImport" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1298:12: C0103: Variable name "picNum" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1297:12: W0612: Unused variable 'pieceImport' (unused-variable)

termProject.py:1308:0: C0116: Missing function or method docstring (missing-function-docstring)

termProject.py:1308:0: C0103: Function name "shuffNumbering" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1308:0: R0914: Too many local variables (24/15) (too-many-locals)

termProject.py:1317:4: C0103: Variable name "stepHor" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1317:13: C0103: Variable name "stepVer" doesn't conform to snake_case naming style (invalid-name)
```

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termProject.py:1340:4: C0103: Variable name "picNum" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:1341:4: C0103: Variable name "dashboardPos" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:1352:12: C0103: Variable name "pieceImg" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:1353:12: C0103: Variable name "picName" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:1353:22: C0209: Formatting a regular string which could be
an f-string (consider-using-f-string)

termProject.py:1356:12: C0103: Variable name "picNum" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:1367:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1369:4: C0103: Variable name "picNum" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:1375:17: E0602: Undefined variable 'img' (undefined-
variable)

termProject.py:1381:21: E0602: Undefined variable 'colors' (undefined-
variable)

termProject.py:1390:12: W0707: Consider explicitly re-raising using
'except TypeError as exc' and 'raise Exception('Too many colors in the
image') from exc' (raise-missing-from)

termProject.py:1390:12: W0719: Raising too general exception: Exception
(broad-exception-raised)

termProject.py:1369:4: W0612: Unused variable 'picNum' (unused-variable)

termProject.py:1375:8: W0612: Unused variable 'pixels' (unused-variable)

termProject.py:1379:8: W0612: Unused variable 'max_occurence' (unused-
variable)

termProject.py:1379:23: W0612: Unused variable 'most_present' (unused-
variable)

termProject.py:1401:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1403:4: C0103: Variable name "picNum" doesn't conform to
snake_case naming style (invalid-name)
```

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termProject.py:1405:25: C0209: Formatting a regular string which could be an f-string (consider-using-f-string)

termProject.py:1424:12: W0707: Consider explicitly re-raising using 'except TypeError as exc' and 'raise Exception('Too many colors in the image') from exc' (raise-missing-from)

termProject.py:1424:12: W0719: Raising too general exception: Exception (broad-exception-raised)

termProject.py:1403:4: W0612: Unused variable 'picNum' (unused-variable)

termProject.py:1409:8: W0612: Unused variable 'pixels' (unused-variable)

termProject.py:1413:8: W0612: Unused variable 'max_occurence' (unused-variable)

termProject.py:1413:23: W0612: Unused variable 'most_present' (unused-variable)

termProject.py:1427:0: C0413: Import "import copy" should be placed at the top of the module (wrong-import-position)

termProject.py:1429:0: C0116: Missing function or method docstring (missing-function-docstring)

termProject.py:1429:0: C0103: Function name "compareColors" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1429:0: R0914: Too many local variables (18/15) (too-many-locals)

termProject.py:1430:4: C0103: Variable name "finalPiecesColors" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1431:4: C0103: Variable name "shuffPiecesColors" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1439:4: C0103: Variable name "numSelected" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1440:4: C0206: Consider iterating with .items() (consider-using-dict-items)

termProject.py:1442:12: C0206: Consider iterating with .items() (consider-using-dict-items)

termProject.py:1448:4: C0103: Variable name "tempVal" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1449:4: C0206: Consider iterating with .items() (consider-using-dict-items)
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termProject.py:1458:4: C0103: Variable name "firstSieve" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1459:4: C0103: Variable name "numSelect" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1460:4: C0206: Consider iterating with .items() (consider-using-dict-items)

termProject.py:1462:12: C0206: Consider iterating with .items() (consider-using-dict-items)

termProject.py:1469:4: C0103: Variable name "temVal" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1470:4: C0206: Consider iterating with .items() (consider-using-dict-items)

termProject.py:1479:4: C0103: Variable name "secondSieve" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1480:4: C0103: Variable name "numSel" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1481:4: C0206: Consider iterating with .items() (consider-using-dict-items)

termProject.py:1483:12: C0206: Consider iterating with .items() (consider-using-dict-items)

termProject.py:1490:4: C0206: Consider iterating with .items() (consider-using-dict-items)

termProject.py:1498:4: C0103: Variable name "thirdSieve" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1500:4: C0206: Consider iterating with .items() (consider-using-dict-items)

termProject.py:1502:12: C0206: Consider iterating with .items() (consider-using-dict-items)

termProject.py:1509:4: C0206: Consider iterating with .items() (consider-using-dict-items)

termProject.py:1518:4: C0103: Variable name "fourthSieve" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1520:4: C0206: Consider iterating with .items() (consider-using-dict-items)

termProject.py:1522:12: C0206: Consider iterating with .items() (consider-using-dict-items)
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termProject.py:1530:4: C0206: Consider iterating with .items() (consider-using-dict-items)

termProject.py:1429:0: R0912: Too many branches (32/12) (too-many-branches)

termProject.py:1429:0: R0915: Too many statements (62/50) (too-many-statements)

termProject.py:1546:0: C0116: Missing function or method docstring (missing-function-docstring)

termProject.py:1546:0: C0103: Function name "updateShuffledImageNums" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1547:4: E0602: Undefined variable 'data' (undefined-variable)

termProject.py:1550:4: C0103: Variable name "stepHor" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1551:4: C0103: Variable name "stepVer" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1552:4: C0103: Variable name "picNum" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1557:12: C0103: Variable name "WHITE" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1560:12: C0103: Variable name "picNum" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1561:4: E0602: Undefined variable 'data' (undefined-variable)

termProject.py:1566:0: C0116: Missing function or method docstring (missing-function-docstring)

termProject.py:1566:0: C0103: Function name "edgeDetection" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1566:0: E0102: function already defined line 1241 (function-redefined)

termProject.py:1566:25: W0613: Unused argument 'canvas' (unused-argument)

termProject.py:1566:33: W0613: Unused argument 'data' (unused-argument)

termProject.py:1571:0: C0116: Missing function or method docstring (missing-function-docstring)
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termProject.py:1571:0: C0103: Function name "placeNumbers" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:1571:17: W0613: Unused argument 'canvas' (unused-argument)

termProject.py:1571:25: W0613: Unused argument 'data' (unused-argument)

termProject.py:1574:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1574:0: C0103: Function name "finalKeyPressed" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:1574:20: W0613: Unused argument 'event' (unused-argument)

termProject.py:1577:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1577:0: C0103: Function name "finalTimerFired" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:1577:20: W0613: Unused argument 'data' (unused-argument)

termProject.py:1581:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1581:0: C0103: Function name "loadFinal" doesn't conform to
snake_case naming style (invalid-name)

termProject.py:1586:4: C0103: Variable name "finalImage" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:1590:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1590:0: C0103: Function name "loadShuffled" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:1595:4: C0103: Variable name "finalImage" doesn't conform
to snake_case naming style (invalid-name)

termProject.py:1599:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1599:0: C0103: Function name "displayShuffled" doesn't
conform to snake_case naming style (invalid-name)

termProject.py:1607:0: C0116: Missing function or method docstring
(missing-function-docstring)

termProject.py:1607:0: C0103: Function name "drawFinalImage" doesn't
conform to snake_case naming style (invalid-name)
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termProject.py:1610:63: E0602: Undefined variable 'Imag' (undefined-variable)

termProject.py:1612:0: C0116: Missing function or method docstring (missing-function-docstring)

termProject.py:1612:0: C0103: Function name "createFinalImage" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1617:0: C0116: Missing function or method docstring (missing-function-docstring)

termProject.py:1617:0: C0103: Function name "createSolvedPuzzle" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1617:23: W0613: Unused argument 'canvas' (unused-argument)

termProject.py:1617:31: W0613: Unused argument 'data' (unused-argument)

termProject.py:1620:0: C0116: Missing function or method docstring (missing-function-docstring)

termProject.py:1620:0: C0103: Function name "finalRedrawAll" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1623:7: C0121: Comparison 'data.numbering == False' should be 'data.numbering is False' if checking for the singleton value False, or 'not data.numbering' if testing for falsiness (singleton-comparison)

termProject.py:1630:7: C0121: Comparison 'data.shuffNumbering == False' should be 'data.shuffNumbering is False' if checking for the singleton value False, or 'not data.shuffNumbering' if testing for falsiness (singleton-comparison)

termProject.py:1634:7: C0121: Comparison 'data.shuffDisplay == False' should be 'data.shuffDisplay is False' if checking for the singleton value False, or 'not data.shuffDisplay' if testing for falsiness (singleton-comparison)

termProject.py:1643:0: C0116: Missing function or method docstring (missing-function-docstring)

termProject.py:1644:4: C0103: Function name "redrawAllWrapper" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1651:4: C0103: Function name "mousePressedWrapper" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1658:4: C0103: Function name "mouseMotionWrapper" doesn't conform to snake_case naming style (invalid-name)
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termProject.py:1663:4: C0103: Function name "mouseReleaseWrapper" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1672:4: C0103: Function name "keyPressedWrapper" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1676:4: C0103: Function name "timerFiredWrapper" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1682:4: C0115: Missing class docstring (missing-class-docstring)

termProject.py:1686:4: C0103: Attribute name "timerDelay" doesn't conform to snake_case naming style (invalid-name)

termProject.py:1682:4: R0205: Class 'Struct' inherits from object, can be safely removed from bases in python3 (useless-object-inheritance)

termProject.py:1682:26: C0321: More than one statement on a single line (multiple-statements)

termProject.py:1684:4: W0201: Attribute 'width' defined outside __init__ (attribute-defined-outside-init)

termProject.py:1685:4: W0201: Attribute 'height' defined outside __init__ (attribute-defined-outside-init)

termProject.py:1686:4: W0201: Attribute 'timerDelay' defined outside __init__ (attribute-defined-outside-init)

termProject.py:1682:4: R0903: Too few public methods (0/2) (too-few-public-methods)

termProject.py:40:0: C0411: standard import "os" should be placed before third party imports "PIL", "PIL.ImageTk", "PIL.Image" (wrong-import-order)

termProject.py:41:0: C0411: standard import "time" should be placed before third party imports "PIL", "PIL.ImageTk", "PIL.Image" (wrong-import-order)

termProject.py:372:0: C0411: standard import "tkinter.filedialog" should be placed before third party imports "PIL", "PIL.ImageTk", "PIL.Image" (wrong-import-order)

termProject.py:1427:0: C0411: standard import "copy" should be placed before third party imports "PIL", "PIL.ImageTk", "PIL.Image", "PIL.Image" (wrong-import-order)

termProject.py:372:0: C0412: Imports from package tkinter are not grouped (ungrouped-imports)

termProject.py:37:0: W0611: Unused import PIL (unused-import)
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termProject.py:38:0: W0611: Unused ImageTk imported from PIL (unused-
import)

termProject.py:1427:0: W0611: Unused import copy (unused-import)

termProject.py:36:0: W0614: Unused import(s) collections, enum, sys,
types, TclError, re, wantobjects, TkVersion, TclVersion, READABLE,
WRITABLE, EXCEPTION, EventType, Event, NoDefaultRoot, Variable, StringVar,
IntVar, DoubleVar, BooleanVar, mainloop, getint, getdouble, getboolean,
Misc, CallWrapper, XView, YView, Wm, Tcl, Pack, Place, Grid, BaseWidget,
Widget, Toplevel, Button, Checkbutton, Entry, Frame, Label, Listbox, Menu,
Menubutton, Message, Radiobutton, Scale, Scrollbar, Text, OptionMenu,
BitmapImage, image_names, image_types, Spinbox, LabelFrame, PanedWindow,
NO, FALSE, OFF, YES, TRUE, ON, N, S, W, E, SW, SE, NS, EW, NSEW, CENTER,
NONE, X, Y, BOTH, LEFT, TOP, RIGHT, BOTTOM, RAISED, SUNKEN, FLAT, RIDGE,
GROOVE, SOLID, HORIZONTAL, VERTICAL, NUMERIC, CHAR, WORD, BASELINE,
INSIDE, OUTSIDE, SEL, SEL_FIRST, SEL_LAST, END, INSERT, CURRENT, ANCHOR,
NORMAL, DISABLED, ACTIVE, HIDDEN, CASCADE, CHECKBUTTON, COMMAND,
RADIOBUTTON, SEPARATOR, SINGLE, BROWSE, MULTIPLE, EXTENDED, DOTBOX,
UNDERLINE, PIESLICE, CHORD, ARC, FIRST, LAST, BUTT, PROJECTING, ROUND,
BEVEL, MITER, MOVETO, SCROLL, UNITS and PAGES from wildcard import of
tkinter (unused-wildcard-import)


--------------------------------------------------------------------

Your code has been rated at 2.27/10 (previous run: 2.27/10, +0.00)
```