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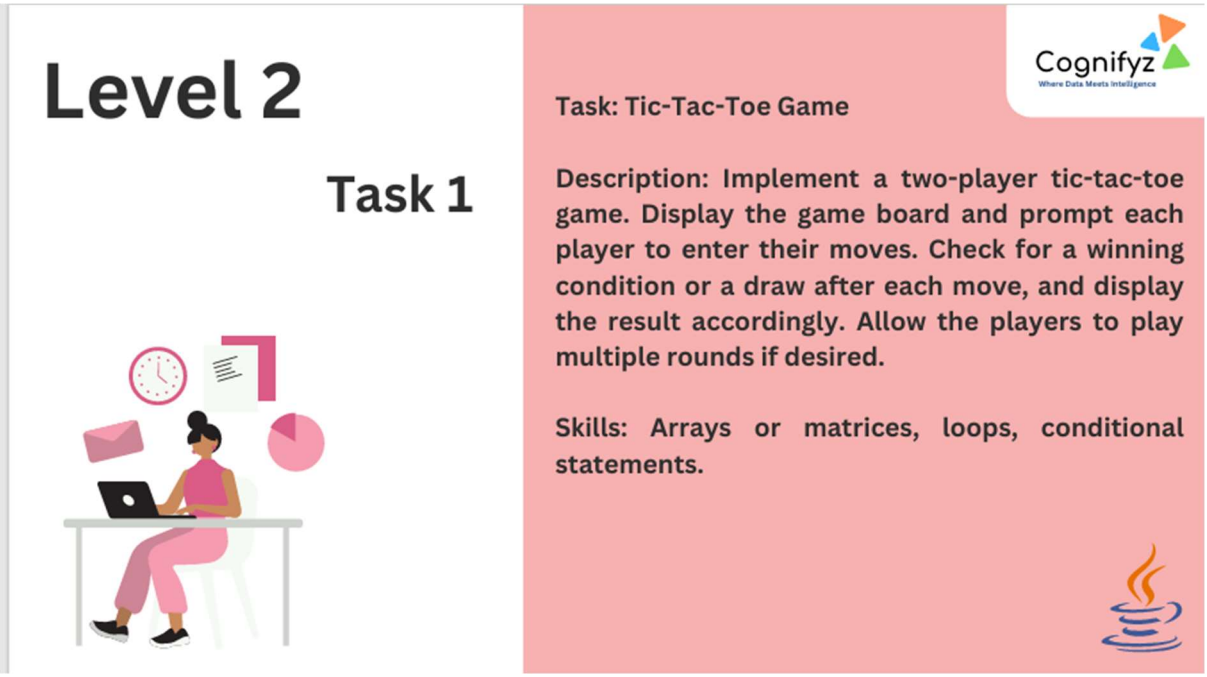
Level 2 output:



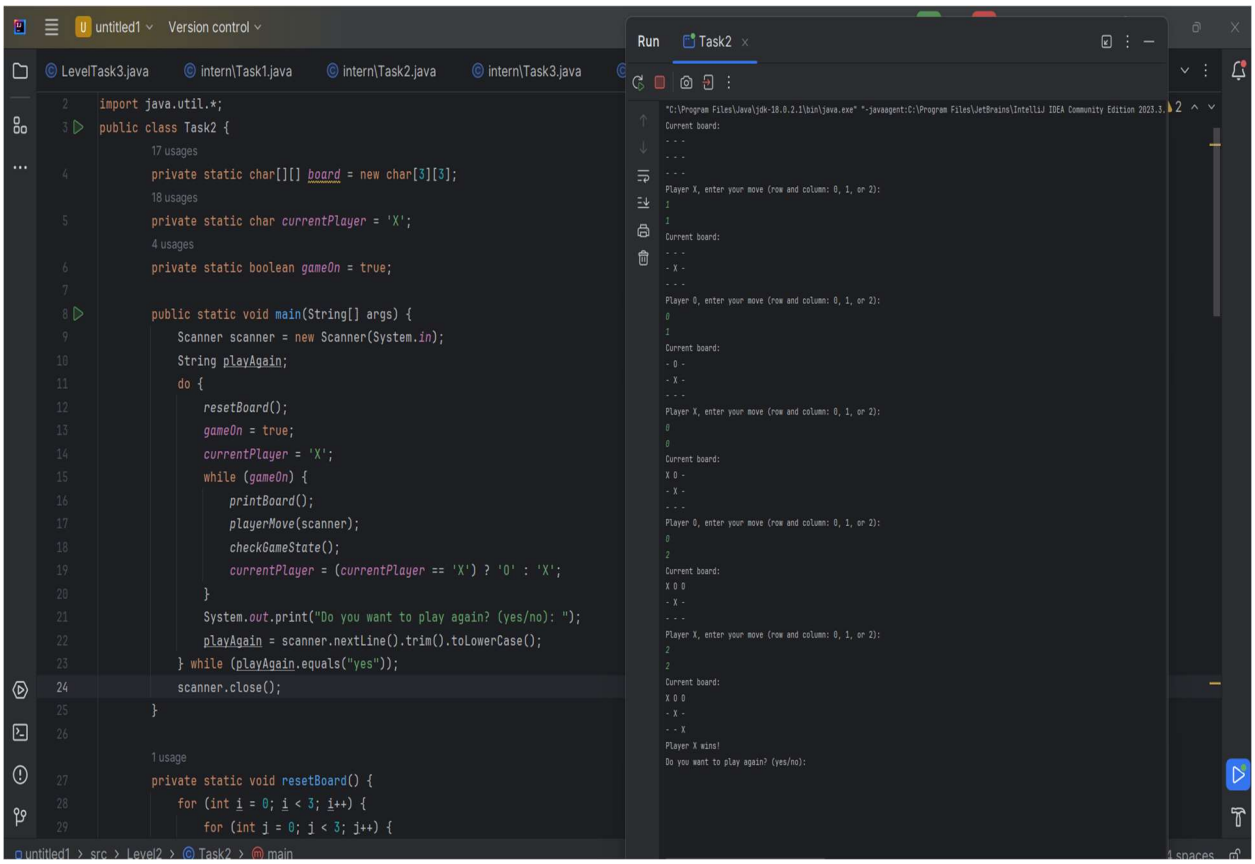
Program:

```
import java.util.*;
public class Task2 {
        private static char[][] board = new char[3][3];
        private static char currentPlayer = 'X';
        private static boolean gameOn = true;

        public static void main(String[] args) {
            Scanner scanner = new Scanner(System.in);
            String playAgain;
            do {
                resetBoard();
                gameOn = true;
                currentPlayer = 'X';
                while (gameOn) {
                    printBoard();
                    playerMove(scanner);
                    checkGameState();
                    currentPlayer = (currentPlayer == 'X') ? 'O' : 'X';
                }
                System.out.print("Do you want to play again? (yes/no): ");
                playAgain = scanner.nextLine().trim().toLowerCase();
```

```
            } while (playAgain.equals("yes"));
            scanner.close();
        }

        private static void resetBoard() {
            for (int i = 0; i < 3; i++) {
                for (int j = 0; j < 3; j++) {
                    board[i][j] = '-';
                }
            }
        }

        private static void printBoard() {
            System.out.println("Current board:");
            for (int i = 0; i < 3; i++) {
                for (int j = 0; j < 3; j++) {
                    System.out.print(board[i][j] + " ");
                }
                System.out.println();
            }
        }

        private static void playerMove(Scanner scanner) {
            int row, col;
            while (true) {
                System.out.println("Player " + currentPlayer + ", enter
your move (row and column: 0, 1, or 2): ");
                row = scanner.nextInt();
                col = scanner.nextInt();
                scanner.nextLine(); // Consume newline
                if (row >= 0 && row < 3 && col >= 0 && col < 3 &&
board[row][col] == '-') {
                    board[row][col] = currentPlayer;
                    break;
                } else {
                    System.out.println("This move is not valid");
                }
            }
        }

        private static void checkGameState() {
            if (checkWinner()) {
                printBoard();
                System.out.println("Player " + currentPlayer + " wins!");
                gameOn = false;
            } else if (checkDraw()) {
                printBoard();
                System.out.println("The game is a draw!");
                gameOn = false;
            }
        }

        private static boolean checkWinner() {
            // Check rows and columns
            for (int i = 0; i < 3; i++) {
                if (board[i][0] == currentPlayer && board[i][1] ==
currentPlayer && board[i][2] == currentPlayer) {
                    return true;
                }
                if (board[0][i] == currentPlayer && board[1][i] ==
currentPlayer && board[2][i] == currentPlayer) {
```

```java
                    return true;
                }
            }
            // Check diagonals
            if (board[0][0] == currentPlayer && board[1][1] ==
currentPlayer && board[2][2] == currentPlayer) {
                return true;
            }
            if (board[0][2] == currentPlayer && board[1][1] ==
currentPlayer && board[2][0] == currentPlayer) {
                return true;
            }
            return false;
        }

        private static boolean checkDraw() {
            for (int i = 0; i < 3; i++) {
                for (int j = 0; j < 3; j++) {
                    if (board[i][j] == '-') {
                        return false;
                    }
                }
            }
            return true;
        }
    }
```

output



Level 2

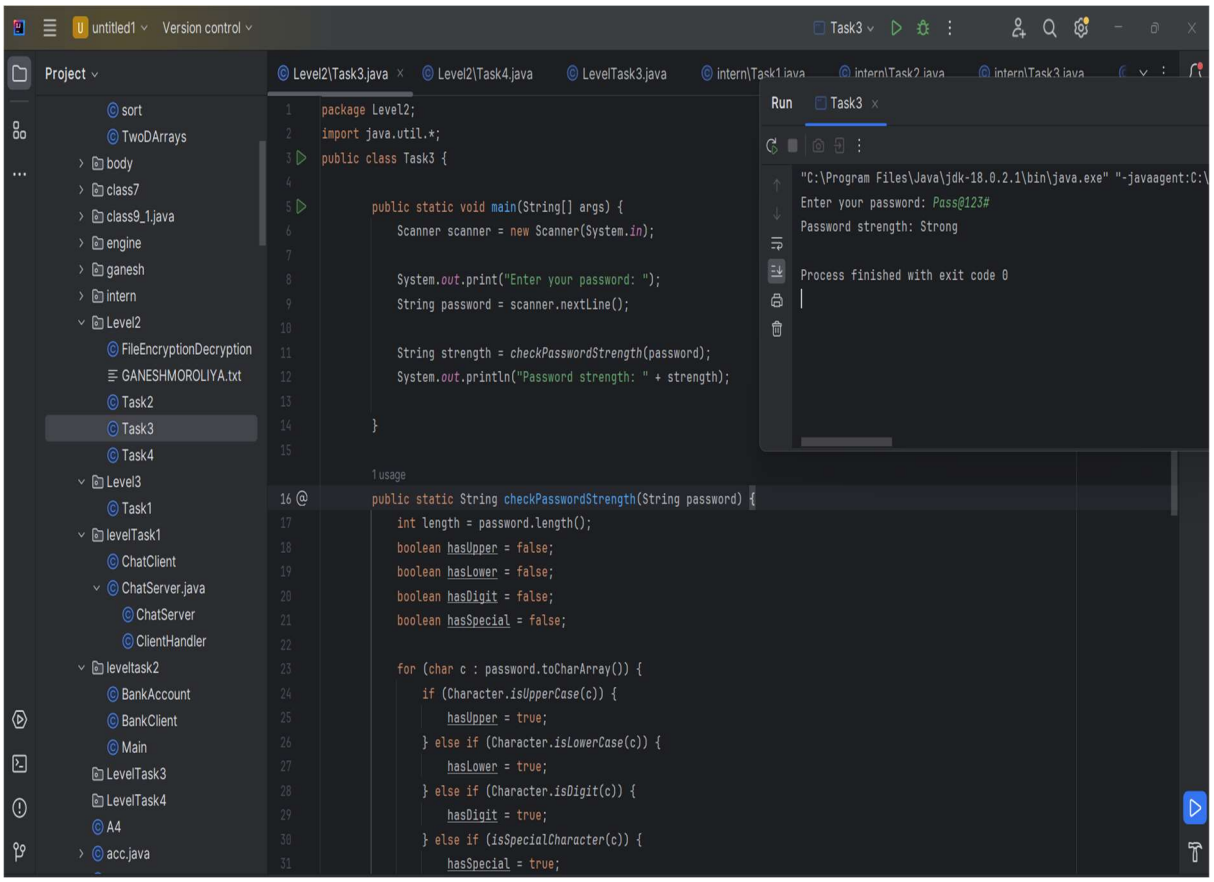
Task 2

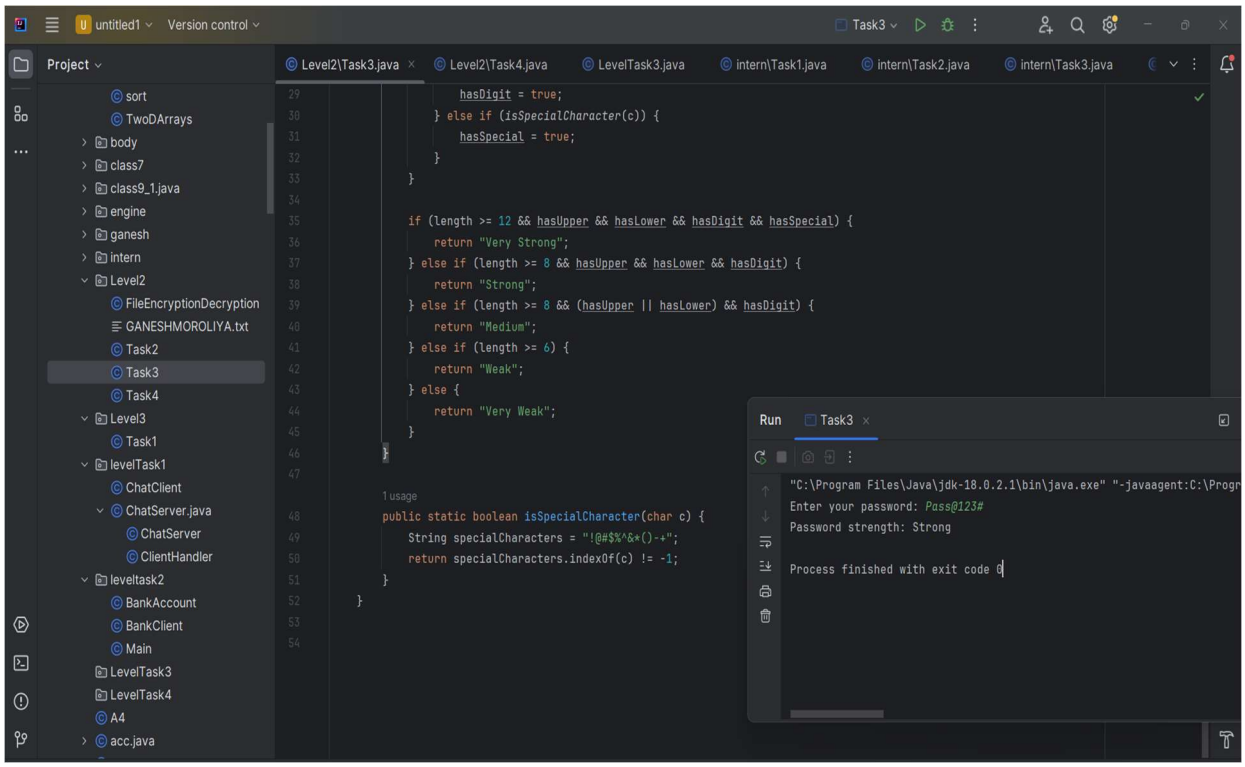
Cognifyz
Where Data Meets Intelligence

Task: Password Strength Checker

Description: Create a program that checks the strength of a password. Prompt the user to input a password and analyze its strength based on certain criteria, such as length, presence of uppercase letters, lowercase letters, numbers, and special characters. Provide feedback on the password strength.

Skills: String manipulation, conditional statements.





Level 2

Task 3

Cognifyz
Where Data Meets Intelligence

Task: File Encryption/Decryption

Description: Create a program that encrypts or decrypts the contents of a text file using a simple encryption algorithm. Prompt the user to choose between encryption or decryption, and input the file name or path. Encrypt or decrypt the file accordingly and save the result to a new file.

Skills: File handling, string manipulation, basic input/output operations.

Program:

```
import java.io.*;
import java.util.Scanner;

public class Task4{

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.println("Do you want to (E)ncrypt or (D)ecrypt a
file?");
        String choice = scanner.nextLine().trim().toUpperCase();

        if (!choice.equals("E") && !choice.equals("D")) {
            System.out.println("Invalid choice. Please enter E for
Encryption or D for Decryption.");
            return;
        }

        System.out.println("Enter the file path: ");
        String filePath = scanner.nextLine().trim();

        System.out.println("Enter the shift key (integer): ");
        int shiftKey = scanner.nextInt();

        if (choice.equals("D")) {
            shiftKey = -shiftKey;
        }

        try {
            String content = readFile(filePath);
            String processedContent = processContent(content, shiftKey);
            String outputFilePath = choice.equals("E") ? "encrypted.txt" :
"decrypted.txt";
            writeFile(outputFilePath, processedContent);
            System.out.println("The file has been processed. Output file: "
+ outputFilePath);
        } catch (IOException e) {
            System.out.println("Error processing the file: " +
e.getMessage());
        }
    }

    private static String readFile(String filePath) throws IOException {
        StringBuilder content = new StringBuilder();
        try (BufferedReader br = new BufferedReader(new
FileReader(filePath))) {
            String line;
            while ((line = br.readLine()) != null) {
                content.append(line).append(System.lineSeparator());
            }
        }
        return content.toString();
    }
```

```java
    private static void writeFile(String filePath, String content) throws
IOException {
        try (BufferedWriter bw = new BufferedWriter(new
FileWriter(filePath))) {
            bw.write(content);
        }
    }

    private static String processContent(String content, int shiftKey) {
        StringBuilder result = new StringBuilder();
        for (char c : content.toCharArray()) {
            if (Character.isLetter(c)) {
                char base = Character.isUpperCase(c) ? 'A' : 'a';
                char shifted = (char) (((c - base + shiftKey) % 26 + 26) %
26 + base);
                result.append(shifted);
            } else {
                result.append(c);
            }
        }
        return result.toString();
    }
}
```

Output: