Uniwersytet Jana Długosza w Częstochowie

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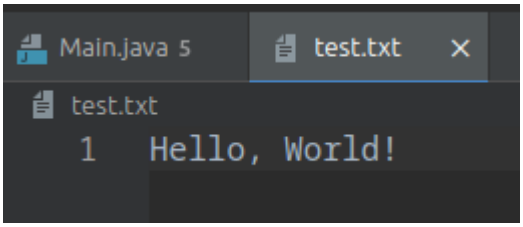
Studia stacjonarne 1 stopnia,

2 rok informatyka, grupa 1

Zadanie 0a

```java
private static void task0a(String[] args) {
    if (args.length != 1) {
        System.out.println("Usage: java DisplayTextFile <filename>");
        return;
    }

    String filename = args[0];

    try {
        displayFileContent(filename);
    } catch (IOException e) {
        System.out.println("An error occurred while reading the file: " + e.getMessage());
    }
}
private static void displayFileContent(String filename) throws IOException {
    try (BufferedReader reader = new BufferedReader(new FileReader(filename))) {
        String line;

        while ((line = reader.readLine()) != null) {
            System.out.println(line);
        }
    }
}
```




```
Enter task >>> 1
Hello, World!
```

Zadanie 0b

```java
private static void task0b(String[] args) {
    if (args.length != 2) {
        System.out.println("Usage: java FileStatistics <filename> <includeConjunctions>");
        return;
    }

    String filename = args[0];
    boolean includeConjunctions = args[1].equals("1");

    try {
        analyzeFile(filename, includeConjunctions);
    } catch (IOException e) {
        System.out.println("An error occurred while reading the file: " + e.getMessage());
    }
}
```

```java
private static void analyzeFile(String filename, boolean includeConjunctions) throws IOException {
    try (BufferedReader reader = new BufferedReader(new FileReader(filename))) {
        String line;
        int charCount = 0;
        int uppercaseCount = 0;
        int lowercaseCount = 0;
        int wordCount = 0;

        while ((line = reader.readLine()) != null) {
            charCount += line.length();

            for (char c : line.toCharArray()) {
                if (Character.isUpperCase(c)) {
                    uppercaseCount++;
                } else if (Character.isLowerCase(c)) {
                    lowercaseCount++;
                }
            }

            String[] words = line.split("\\s+");
            for (String word : words) {
                if (isWord(word, includeConjunctions)) {
                    wordCount++;
                }
            }
        }

        System.out.println("Character count: " + charCount);
        System.out.println("Uppercase letters count: " + uppercaseCount);
        System.out.println("Lowercase letters count: " + lowercaseCount);
        System.out.println("Word count: " + wordCount);
    }
}
```

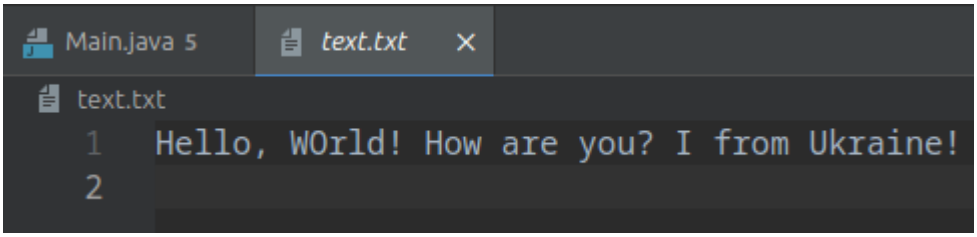
```java
private static boolean isWord(String word, boolean includeConjunctions) {
    if (word.length() > 1) {
        return true;
    }

    return includeConjunctions && !word.matches("[a-zA-Z]");
}
```

```
Character count: 13
Uppercase letters count: 2
Lowercase letters count: 8
Word count: 2
```

Zadanie 1

```java
private static void task1() {
    Scanner scanner = new Scanner(System.in);
    BufferedWriter writer = null;

    try {
        System.out.print("Enter the filename for the text file: ");
        String filename = scanner.nextLine();

        writer = new BufferedWriter(new FileWriter(filename));

        System.out.println("Enter text (press Enter to finish):");
        String line;

        while (!(line = scanner.nextLine()).isEmpty()) {
            writer.write(line);
            writer.newLine();
        }

        System.out.println("Data saved to file: " + filename);
    } catch (IOException e) {
        System.out.println("Error while writing to the file: " + e.getMessage());
    } finally {
        try {
            if (writer != null) {
                writer.close();
            }
        } catch (IOException e) {
            System.out.println("Error while closing the file: " + e.getMessage());
        }
    }
}
```

```
Enter the filename for the text file: text.txt
Enter text (press Enter to finish):
Hello, WOrld! How are you? I from Ukraine!

Data saved to file: text.txt
```



Zadanie 2

```
mark@mark:~/Personal/Jana Długosza/2 year/3 semestr/Java/Lab7$ java src/Main.java text.txt
                NAVIGATION
Enter 1 - task 0a
Enter 2 - task 0b
Enter 3 - task 1
Enter 4 - task 2
Enter 5 - task 3
Enter 6 - task 4
Enter 7 - task 5
Enter 8 - task 6
Enter 9 - task 7
Enter 0 - EXIT
Enter task >>> 4
Hello, WOrld! How are you? I from Ukraine!
```

Zadanie 3

```java
private static void task3() {
    generateAndSaveMultiplicationTable(filename:"multiplication_table.txt");
    readAndDisplayMultiplicationTable(filename:"multiplication_table.txt");
}
private static void generateAndSaveMultiplicationTable(String filename) {
    try (BufferedWriter writer = new BufferedWriter(new FileWriter(filename))) {
        for (int i = 1; i <= 10; i++) {
            for (int j = 1; j <= 10; j++) {
                writer.write(i + " * " + j + " = " + (i * j) + "\t");
            }
            writer.newLine();
        }
        System.out.println("Multiplication table saved to file: " + filename);
    } catch (IOException e) {
        System.out.println("An error occurred while writing to the file: " + e.getMessage());
    }
}
private static void readAndDisplayMultiplicationTable(String filename) {
    Path path = Paths.get(filename);

    try (Reader reader = Files.newBufferedReader(path)) {
        int character;

        while ((character = reader.read()) != -1) {
            System.out.print((char) character);
        }
    } catch (IOException e) {
        System.out.println("An error occurred while reading the file: " + e.getMessage());
    }
}
```

```
Multiplication table saved to file: multiplication_table.txt
1 * 1 = 1	1 * 2 = 2	1 * 3 = 3	1 * 4 = 4	1 * 5 = 5	1 * 6 = 6	1 * 7 = 7	1 * 8 = 8	1 * 9 = 9	1 * 10 = 10
2 * 1 = 2	2 * 2 = 4	2 * 3 = 6	2 * 4 = 8	2 * 5 = 10	2 * 6 = 12	2 * 7 = 14	2 * 8 = 16	2 * 9 = 18	2 * 10 = 20
3 * 1 = 3	3 * 2 = 6	3 * 3 = 9	3 * 4 = 12	3 * 5 = 15	3 * 6 = 18	3 * 7 = 21	3 * 8 = 24	3 * 9 = 27	3 * 10 = 30
4 * 1 = 4	4 * 2 = 8	4 * 3 = 12	4 * 4 = 16	4 * 5 = 20	4 * 6 = 24	4 * 7 = 28	4 * 8 = 32	4 * 9 = 36	4 * 10 = 40
5 * 1 = 5	5 * 2 = 10	5 * 3 = 15	5 * 4 = 20	5 * 5 = 25	5 * 6 = 30	5 * 7 = 35	5 * 8 = 40	5 * 9 = 45	5 * 10 = 50
6 * 1 = 6	6 * 2 = 12	6 * 3 = 18	6 * 4 = 24	6 * 5 = 30	6 * 6 = 36	6 * 7 = 42	6 * 8 = 48	6 * 9 = 54	6 * 10 = 60
7 * 1 = 7	7 * 2 = 14	7 * 3 = 21	7 * 4 = 28	7 * 5 = 35	7 * 6 = 42	7 * 7 = 49	7 * 8 = 56	7 * 9 = 63	7 * 10 = 70
8 * 1 = 8	8 * 2 = 16	8 * 3 = 24	8 * 4 = 32	8 * 5 = 40	8 * 6 = 48	8 * 7 = 56	8 * 8 = 64	8 * 9 = 72	8 * 10 = 80
9 * 1 = 9	9 * 2 = 18	9 * 3 = 27	9 * 4 = 36	9 * 5 = 45	9 * 6 = 54	9 * 7 = 63	9 * 8 = 72	9 * 9 = 81	9 * 10 = 90
10 * 1 = 10	10 * 2 = 20	10 * 3 = 30	10 * 4 = 40	10 * 5 = 50	10 * 6 = 60	10 * 7 = 70	10 * 8 = 80	10 * 9 = 90	10 * 10 = 100
```

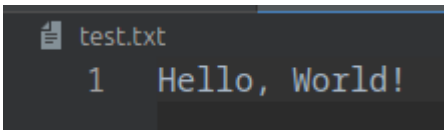
multiplication_table.txt

```
1 * 1 = 1	1 * 2 = 2	1 * 3 = 3	1 * 4 = 4	1 * 5 = 5	1 * 6 = 6	1 * 7 = 7	1 * 8 = 8	1 * 9 = 9	1 * 10 = 10
2 * 1 = 2	2 * 2 = 4	2 * 3 = 6	2 * 4 = 8	2 * 5 = 10	2 * 6 = 12	2 * 7 = 14	2 * 8 = 16	2 * 9 = 18	2 * 10 = 20
3 * 1 = 3	3 * 2 = 6	3 * 3 = 9	3 * 4 = 12	3 * 5 = 15	3 * 6 = 18	3 * 7 = 21	3 * 8 = 24	3 * 9 = 27	3 * 10 = 30
4 * 1 = 4	4 * 2 = 8	4 * 3 = 12	4 * 4 = 16	4 * 5 = 20	4 * 6 = 24	4 * 7 = 28	4 * 8 = 32	4 * 9 = 36	4 * 10 = 40
5 * 1 = 5	5 * 2 = 10	5 * 3 = 15	5 * 4 = 20	5 * 5 = 25	5 * 6 = 30	5 * 7 = 35	5 * 8 = 40	5 * 9 = 45	5 * 10 = 50
6 * 1 = 6	6 * 2 = 12	6 * 3 = 18	6 * 4 = 24	6 * 5 = 30	6 * 6 = 36	6 * 7 = 42	6 * 8 = 48	6 * 9 = 54	6 * 10 = 60
7 * 1 = 7	7 * 2 = 14	7 * 3 = 21	7 * 4 = 28	7 * 5 = 35	7 * 6 = 42	7 * 7 = 49	7 * 8 = 56	7 * 9 = 63	7 * 10 = 70
8 * 1 = 8	8 * 2 = 16	8 * 3 = 24	8 * 4 = 32	8 * 5 = 40	8 * 6 = 48	8 * 7 = 56	8 * 8 = 64	8 * 9 = 72	8 * 10 = 80
9 * 1 = 9	9 * 2 = 18	9 * 3 = 27	9 * 4 = 36	9 * 5 = 45	9 * 6 = 54	9 * 7 = 63	9 * 8 = 72	9 * 9 = 81	9 * 10 = 90
10 * 1 = 10 10 * 2 = 20 10 * 3 = 30 10 * 4 = 40 10 * 5 = 50 10 * 6 = 60 10 * 7 = 70 10 * 8 = 80 10 * 9 = 90 10 * 10 = 100
```

Zadanie 4

```java
private static void task4(String[] args) {
    String filename;

    if (args.length == 1) {
        filename = args[0];
    } else {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter the name of the text file: ");
        filename = scanner.nextLine();
    }

    try {
        displayFileContent(filename);
    } catch (IOException e) {
        System.out.println("An error occurred while reading the file: " + e.getMessage());
    }
}
```

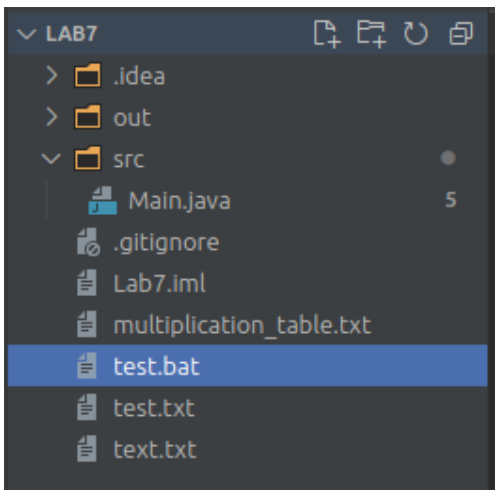
```
mark@mark:~/Personal/Jana Długosza/2 year/3 semestr/Java/Lab7$ java src/Main.java test.txt
                NAVIGATION
Enter 1 - task 0a
Enter 2 - task 0b
Enter 3 - task 1
Enter 4 - task 2
Enter 5 - task 3
Enter 6 - task 4
Enter 7 - task 5
Enter 8 - task 6
Enter 9 - task 7
Enter 0 - EXIT
Enter task >>> 6
Hello, World!
```



Zadanie 5

```java
private static void task5() {
    Scanner scanner = new Scanner(System.in);
    DataOutputStream dataOutputStream = null;

    try {
        System.out.print("Enter the binary file name: ");
        String filename = scanner.nextLine();

        dataOutputStream = new DataOutputStream(new FileOutputStream(filename, true));

        while (true) {
            System.out.print("Enter a number (or 'q' to exit): ");
            String input = scanner.next();

            if ("q".equalsIgnoreCase(input)) {
                break;
            }

            try {
                double number = Double.parseDouble(input);
                dataOutputStream.writeDouble(number);
            } catch (NumberFormatException e) {
                System.out.println("Error! Input is not a number.");
            }
        }

        System.out.println("Data saved to binary file: " + filename);
    } catch (IOException e) {
        System.out.println("Error while writing to the file: " + e.getMessage());
    } finally {
        try {
            if (dataOutputStream != null) {
                dataOutputStream.close();
            }
        } catch (IOException e) {
            System.out.println("Error while closing the stream: " + e.getMessage());
        }
    }
}
```

```
Enter the binary file name: test.bat
Enter a number (or 'q' to exit): 12
Enter a number (or 'q' to exit): 23
Enter a number (or 'q' to exit): 34
Enter a number (or 'q' to exit): 45
Enter a number (or 'q' to exit): 56
Enter a number (or 'q' to exit): 67
Enter a number (or 'q' to exit): 78
Enter a number (or 'q' to exit): 89
Enter a number (or 'q' to exit): 90
Enter a number (or 'q' to exit): q
Data saved to binary file: test.bat
```



Zadanie 6

```java
private static void task6() {
    Scanner scanner = new Scanner(System.in);

    System.out.print("Enter the binary file name: ");
    String filename = scanner.nextLine();

    try (DataInputStream dataInputStream = new DataInputStream(new FileInputStream(filename))) {
        int elementsCount = 0;
        try {
            while (true) {
                double number = dataInputStream.readDouble();
                System.out.println(number);
                elementsCount++;
            }
        } catch (IOException e) {
        }

        System.out.println("Number of elements read: " + elementsCount);
    } catch (IOException e) {
        System.out.println("Error while reading the binary file: " + e.getMessage());
    }
}
```

```
Enter the binary file name: test.bat
12.0
23.0
34.0
45.0
56.0
67.0
78.0
89.0
90.0
Number of elements read: 9
```

Zadanie 7

```java
private static void task7() {
    generateAndSaveMultiplicationTable(filename:"multiplication_table.bin");
    readAndDisplayMultiplicationTable(filename:"multiplication_table.bin");
}
```

```
Multiplication table saved to file: multiplication_table.bin
1 * 1 = 1       1 * 2 = 2       1 * 3 = 3       1 * 4 = 4       1 * 5 = 5       1 * 6 = 6       1 * 7 = 7       1 * 8 = 8       1 * 9 = 9       1 * 10 = 10
2 * 1 = 2       2 * 2 = 4       2 * 3 = 6       2 * 4 = 8       2 * 5 = 10      2 * 6 = 12      2 * 7 = 14      2 * 8 = 16      2 * 9 = 18      2 * 10 = 20
3 * 1 = 3       3 * 2 = 6       3 * 3 = 9       3 * 4 = 12      3 * 5 = 15      3 * 6 = 18      3 * 7 = 21      3 * 8 = 24      3 * 9 = 27      3 * 10 = 30
4 * 1 = 4       4 * 2 = 8       4 * 3 = 12      4 * 4 = 16      4 * 5 = 20      4 * 6 = 24      4 * 7 = 28      4 * 8 = 32      4 * 9 = 36      4 * 10 = 40
5 * 1 = 5       5 * 2 = 10      5 * 3 = 15      5 * 4 = 20      5 * 5 = 25      5 * 6 = 30      5 * 7 = 35      5 * 8 = 40      5 * 9 = 45      5 * 10 = 50
6 * 1 = 6       6 * 2 = 12      6 * 3 = 18      6 * 4 = 24      6 * 5 = 30      6 * 6 = 36      6 * 7 = 42      6 * 8 = 48      6 * 9 = 54      6 * 10 = 60
7 * 1 = 7       7 * 2 = 14      7 * 3 = 21      7 * 4 = 28      7 * 5 = 35      7 * 6 = 42      7 * 7 = 49      7 * 8 = 56      7 * 9 = 63      7 * 10 = 70
8 * 1 = 8       8 * 2 = 16      8 * 3 = 24      8 * 4 = 32      8 * 5 = 40      8 * 6 = 48      8 * 7 = 56      8 * 8 = 64      8 * 9 = 72      8 * 10 = 80
9 * 1 = 9       9 * 2 = 18      9 * 3 = 27      9 * 4 = 36      9 * 5 = 45      9 * 6 = 54      9 * 7 = 63      9 * 8 = 72      9 * 9 = 81      9 * 10 = 90
10 * 1 = 10     10 * 2 = 20     10 * 3 = 30     10 * 4 = 40     10 * 5 = 50     10 * 6 = 60     10 * 7 = 70     10 * 8 = 80     10 * 9 = 90     10 * 10 = 100
```