Задание1. Коды Грея.

FirstTask.java

```java
package ru.jrp;

import java.util.stream.Collectors;
import java.util.stream.IntStream;

public class FirstTask {  new *
    public static void main(String[] args) {  new *
        int num = 3;
        String res = cycleGrayCode(num).mapToObj(Integer::toString).collect(Collectors.joining( delimiter: ", "));
        System.out.println(res);
    }

    private static IntStream cycleGrayCode(int number) {  1 usage  new *
        if( number <= 0 || number > 16) {
            return IntStream.of( t: 0);
        }


        int count = 1 << number;

        return IntStream.range(0, count)
                .map( int i -> i ^ (i >> 1));
    }
}

```

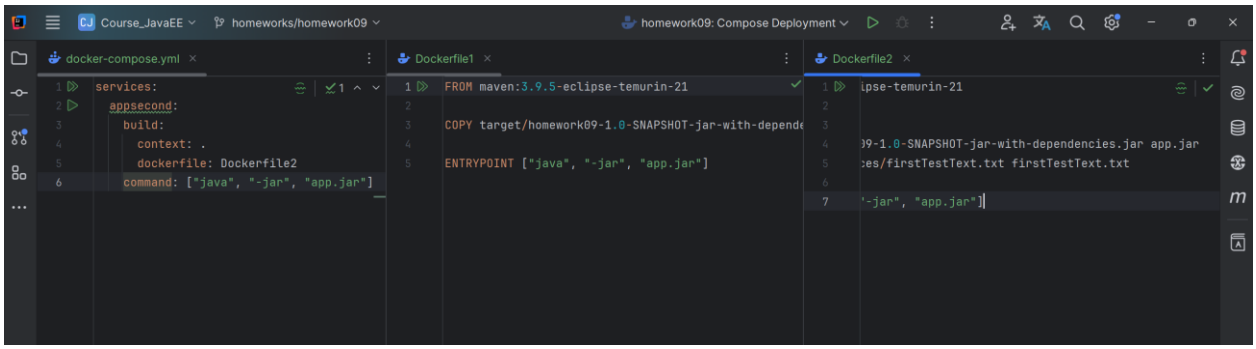
Задание2. Наиболее встречающиеся слова.

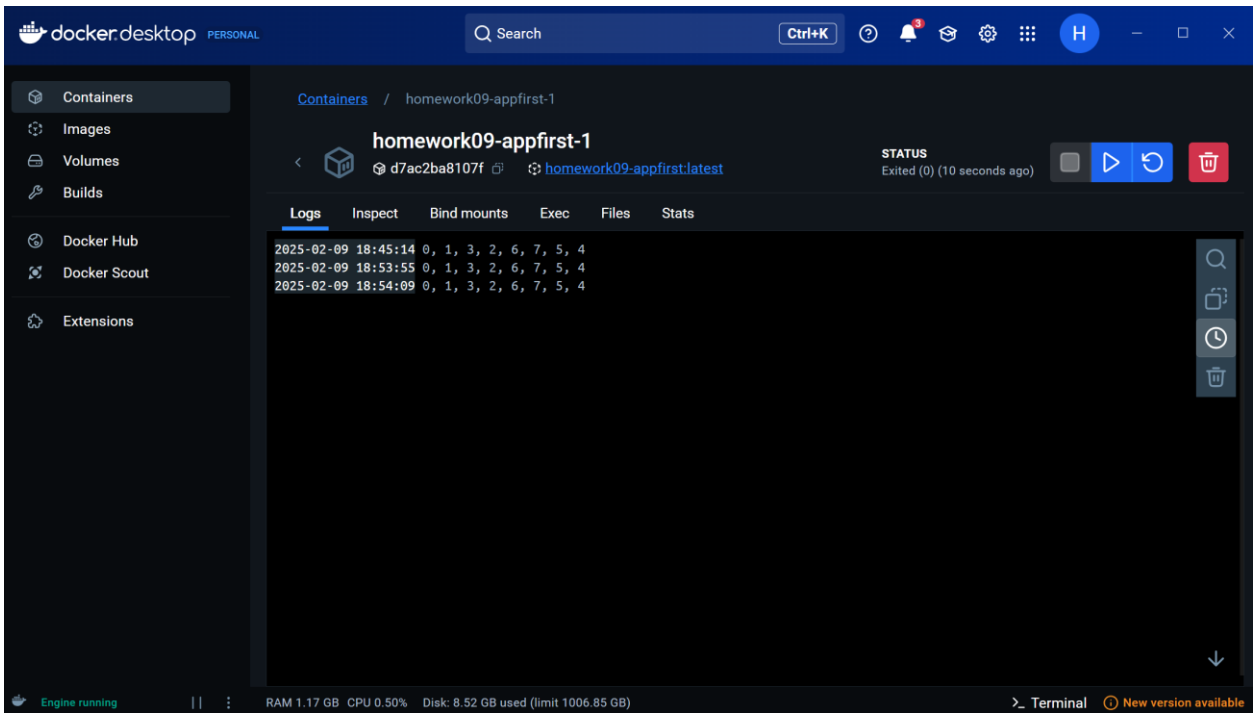
SecondTask.java

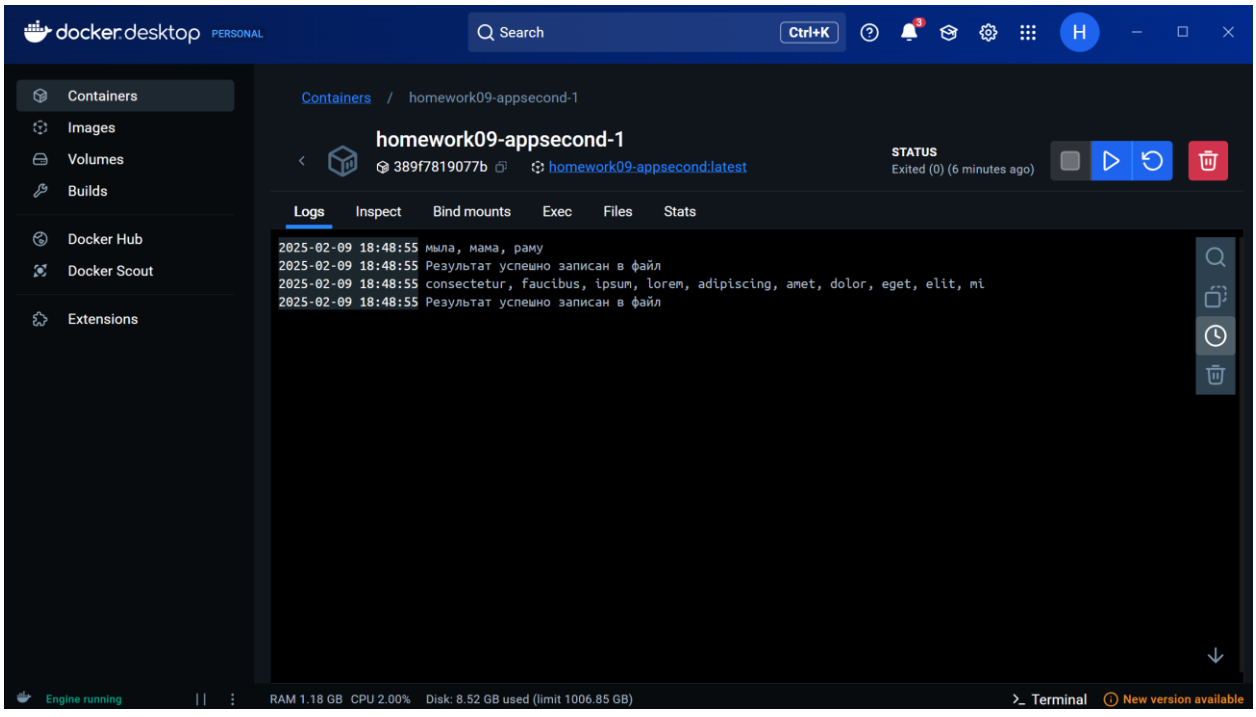
```java
package ru.jrp;

import java.io.*;
import java.nio.charset.StandardCharsets;
import java.util.Arrays;
import java.util.Map;
import java.util.Objects;
import java.util.Scanner;
import java.util.function.Function;
import java.util.stream.Collectors;
import java.util.stream.Stream;

public class SecondTask {  new *
    public static void main(String[] args) {  new *


        String firstTest = "firstTestText.txt";
        String secondTest = "secondTestText.txt";

        try (Scanner sc = new Scanner(System.in)) {
            test(firstTest);
            test(secondTest);
        }
    }
```

```java
    private static void test(String fileName) {  2 usages  new *
        try (InputStream inputStream = SecondTask.class.getClassLoader().getResourceAsStream(fileName);
             InputStreamReader inputStreamReader = new InputStreamReader(Objects.requireNonNull(inputStream), StandardCharsets.UTF_8);
             BufferedReader bufferedReader = new BufferedReader(inputStreamReader);
             FileWriter fileWriter = new FileWriter( fileName: "result.txt",  append: true);) {

            int top = 10;

            Stream<String> lines = bufferedReader.lines();
            Map<String, Long> wordsCount = lines
                    .flatMap( String line -> Arrays.stream(line.split( regex: "[^\\p{L}0-9]+")))
                    .filter( String word -> !word.isEmpty())
                    .map(String::toLowerCase)
                    .collect(Collectors.groupingBy(Function.identity(), Collectors.counting()));

            String res = wordsCount.entrySet().stream() Stream<Entry<...>>
                    .sorted(Map.Entry.comparingByValue().reversed()
                            .thenComparing(Map.Entry.comparingByKey()))
                    .limit(top)
                    .map(Map.Entry::getKey) Stream<String>
                    .collect(Collectors.joining( delimiter: ", "));

            System.out.println(res);

            fileWriter.write( str: res + "\n");
            System.out.println("Результат успешно записан в файл");
        } catch (IOException e) {
            throw new RuntimeException(e);
        }
    }
}
```

Задание 3. Добавить в файл docker-compose.yml настройки для запуска приложения.




docker desktop PERSONAL
Search Ctrl+K
Containers
Images
Volumes
Builds
Docker Hub
Docker Scout
Extensions
Containers / homework09-appfirst-1
homework09-appfirst-1
d7ac2ba8107f
homework09-appfirst:latest
STATUS
Exited (0) (10 seconds ago)
Logs Inspect Bind mounts Exec Files Stats
2025-02-09 18:45:14 0, 1, 3, 2, 6, 7, 5, 4
2025-02-09 18:53:55 0, 1, 3, 2, 6, 7, 5, 4
2025-02-09 18:54:09 0, 1, 3, 2, 6, 7, 5, 4
Engine running
RAM 1.17 GB CPU 0.50% Disk: 8.52 GB used (limit 1006.85 GB)
Terminal
New version available


docker desktop PERSONAL
Search Ctrl+K
Containers
Images
Volumes
Builds
Docker Hub
Docker Scout
Extensions
Containers / homework09-appsecond-1
homework09-appsecond-1
389f7819077b
homework09-appsecond:latest
STATUS
Exited (0) (6 minutes ago)
Logs Inspect Bind mounts Exec Files Stats
2025-02-09 18:48:55 мыла, мама, раму
2025-02-09 18:48:55 Результат успешно записан в файл
2025-02-09 18:48:55 consectetur, faucibus, ipsum, lorem, adipiscing, amet, dolor, eget, elit, mi
2025-02-09 18:48:55 Результат успешно записан в файл
Engine running
RAM 1.18 GB CPU 2.00% Disk: 8.52 GB used (limit 1006.85 GB)
Terminal
New version available