LAPORAN TUGAS KECIL I

"Penyelesaian *Word Search Puzzle* dengan Algoritma *Brute Force*"

Laporan Ini Dibuat Untuk Memenuhi Tugas Perkuliahan

Mata Kuliah Strategi Algoritma (IF2211)

KELAS 02

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BAB I
Langkah Algoritma *Brute Force*

Deskripsi Langkah Algoritma

Algoritma *Brute Force* adalah algoritma yang menggunakan pendekatan *straightforward* untuk menyelesaikan sebuah permasalahan. Algoritma *brute force* umumnya tidak "cerdas" dan tidak mangkus, karena program membutuhkan volume komputasi yang besar dan waktu yang lama dalam penyelesaiannya.

Langkah – Langkah algoritma untuk program Word Search Puzzle Solver:

1. Program membaca setiap elemen matriks puzzle untuk mencari huruf pertama dari kata yang ingin dicari. Misalnya EARTH, maka program akan mencari huruf "E" di dalam matriks puzzle. Apabila program tidak menemukan huruf tersebut di dalam matriks, maka kata tersebut tidak terdapat dalam puzzle.

2. Setelah huruf ditemukan, maka program akan mencari ke setiap arah (seperti arah mata angin) untuk mencari huruf kedua. Misalnya "E" dalam EARTH sudah ditemukan, maka program akan mencari huruf "A". Jika program menemukan huruf kedua di kanan dari huruf pertama, maka *flag* kanan akan menjadi true. Apabila program tidak menemukan huruf kedua di arah manapun, maka kata tidak terdapat dalam huruf itu, sehingga program akan melanjutkan pencarian ke huruf pertama selanjutnya.

3. Program akan mengecek *flag* yang berada dalam status *true* dan mengecek kecocokan huruf selanjutnya dengan kata yang dicari. Misalnya *flag* kiri dari kata EARTH menjadi *true*, maka program akan mengecek apabila setiap huruf selanjutnya sama. Apabila semua huruf sama dan panjang dari kata sama, maka program akan selesai dan mencetak matriks solusi.

BAB II
Source Program dalam Bahasa Java

```
import java.io.*;
import java.nio.file.Files;
import java.nio.file.Paths;
import java.util.*;

public class wordPuzzle {
	// DECLARING COLOR SPACES
	public static final String ANSI_RESET = "\033[0m";
	public static final String ANSI_MAGENTA = "\033[95m";
	public static final String ANSI_RED = "\033[31m";
	public static final String ANSI_GREEN = "\033[32m";
	public static final String ANSI_YELLOW = "\033[33m";
	public static final String ANSI_BLUE = "\033[34m";
	public static final String ANSI_PURPLE = "\033[35m";
	public static final String ANSI_CYAN = "\033[36m";
	public static final String ANSI_BRIGHT_RED = "\033[91m";

	public static boolean isWithinRange(int index, int lowerBound, int
	upperBound) {
		if ((index >= lowerBound) && (index < upperBound)) {
			return true;
		} else {
			return false;
		}
	}

	public static void main (String[] args) {
		int i, j, k, x, y;
		int letterCounter, charIndexX, charIndexY, stepsTaken;
		int ansX, ansY;
		String testCase, chars, path1, path2, fullPath;
		Character currentChar;
		boolean markFound = false;
		boolean checkFlag;
		boolean up, rightup, right, rightdown, down, leftdown, left, leftup;
		boolean finalup, finalrightup, finalright, finalrightdown, finaldown,
		finalleftdown, finalleft, finalleftup;
		long startComp, endComp, compDur, startProg, endProg, progDur;
		float elapsedTime, fileDuration;

		// INITIATE BOOLEANS
		up = false;
		rightup = false;
		right = false;
		rightdown = false;
		down = false;
		leftdown = false;
		left = false;
		leftup = false;
		finalup = false;
		finalrightup = false;
		finalright = false;
		finalrightdown = false;
		finaldown = false;
		finalleftdown = false;
		finalleft = false;
		finalleftup = false;

		System.out.println("Please input your file name in the test folder:");
		path1 = "../test/";
		Scanner input = new Scanner(System.in);
		path2 = input.nextLine();
		fullPath = path1 + path2;
		startProg = System.nanoTime();
```

```
        input.close();

        try {
                ......
```

Blok kode dipisah agar dapat terbaca dengan baik

```
try {
        List<String> fullFile = Files.readAllLines(Paths.get(fullPath));
        ArrayList<ArrayList<Character>> game = new
        ArrayList<ArrayList<Character>>();

              // READING MATRIX
              for (String line : fullFile) {
                  if (line.trim().isEmpty()) {
                      break;
                  } else {
                      Scanner scanElmt = new Scanner (line);
                      ArrayList<Character> col = new ArrayList<Character>();
                      while (scanElmt.hasNext()) {
                          chars = scanElmt.next().trim();
                          col.add(chars.charAt(0));
                      }
                      game.add(col);
                      scanElmt.close();
                  }
              }

        // CREATE COLOR MATRIX
        String[][] color_codes = new String[game.size()][game.get(0).size()];
        for (i=0;i<game.size();i++) {
                for(j=0;j<game.get(i).size();j++) {
                color_codes[i][j] = ANSI_RESET;
                }
        }

        // CREATING ANSWER MATRIX
        String[][] answer = new String[game.size()][game.get(0).size()];
        for (i=0;i<game.size();i++) {
                for (j=0;j<game.get(i).size();j++) {
                        answer[i][j] = "-";
                }
        }

        // CREATE COLOR MATRIX
        String[][] color_codes = new String[game.size()][game.get(0).size()];
        for (i=0;i<game.size();i++) {
                for(j=0;j<game.get(i).size();j++) {
                        color_codes[i][j] = ANSI_RESET;
                }
        }

        // CREATING ANSWER MATRIX
        String[][] answer = new String[game.size()][game.get(0).size()];
        for (i=0;i<game.size();i++) {
                for (j=0;j<game.get(i).size();j++) {
                        answer[i][j] = "-";
                }
              }

        // READ TEST CASES AND CALCULATING
        for (String line : fullFile) {
                stepsTaken = 0;
                if (line.trim().isEmpty()) {
                        markFound = true;
                        continue;
                }
                if (markFound) {
```

```
startComp = System.nanoTime();
Scanner readCase = new Scanner(line);
testCase = readCase.next();
for (i=0;i<game.size();i++) {
      ......
```

Blok kode dipisah agar dapat terbaca dengan baik

```
for (i=0;i<game.size();i++) {
      for (j=0;j<game.get(0).size();j++) {
            stepsTaken++;
            if (game.get(i).get(j) == testCase.charAt(0)) {
                  k = 0;
                  x = j; // Letak baris
                  y = i; // Letak kolom
                  // CHECK EVERY DIRECTION
                  // IF CURRENTLY SCANNING TOP LEFT CORNER
                  if ((i == 0) && (j == 0)) {
                        // Arah kanan
                        if (testCase.charAt(k+1) == game.get(y).get(x+1)) {
                              stepsTaken++;
                              right = true;
                        }
                        // Arah kanan bawah
                        if (testCase.charAt(k+1) == game.get(y+1).get(x+1)) {
                              stepsTaken++;
                              rightdown = true;
                  }
                        // Arah bawah
                        if (testCase.charAt(k+1) == game.get(y+1).get(x)) {
                              stepsTaken++;
                              down = true;
                  }
                  // IF CURRENTLY SCANNING TOP RIGHT CORNER
                  } else if ((i == 0) && (j == game.get(i).size()-1)) {
                        // Arah bawah
                        if (testCase.charAt(k+1) == game.get(y+1).get(x)) {
                              stepsTaken++;
                              down = true;
                        }
                        // Arah kiri bawah
                        if (testCase.charAt(k+1) == game.get(y+1).get(x-1)) {
                              stepsTaken++;
                              leftdown = true;
                        }
                        // Arah kiri
                        if (testCase.charAt(k+1) == game.get(y).get(x-1)) {
                              stepsTaken++;
                              left = true;
                        }
                  // IF CURRENTLY SCANNING BOTTOM LEFT CORNER
                  } else if ((i == game.size()-1) && (j == 0)) {
                        // Arah atas
                        if (testCase.charAt(k+1) == game.get(y-1).get(x)) {
                              stepsTaken++;
                              up = true;
                        }
                        // Arah kanan atas
                        if (testCase.charAt(k+1) == game.get(y-1).get(x+1)) {
                              stepsTaken++;
                              rightup = true;
                        }
                        // Arah kanan
                        if (testCase.charAt(k+1) == game.get(y).get(x+1)) {
                              stepsTaken++;
                              right = true;
                        }
                  // IF CURRENTLY SCANNING BOTTOM RIGHT CORNER
```

```
} else if ((i == game.size()-1)&&(j == game.get(i).size()-1)) {
        // Arah atas
        if (testCase.charAt(k+1) == game.get(y-1).get(x)) {
                stepsTaken++;
                up = true;
        }
        // Arah kiri atas
        if (testCase.charAt(k+1) == game.get(y-1).get(x-1)) {
                stepsTaken++;
                leftup = true;
        }
        // Arah kiri
        if (testCase.charAt(k+1) == game.get(y).get(x-1)) {
                stepsTaken++;
                left = true;
        }
// IF CURRENTLY SCANNING TOP ROW
} else if ((i == 0) && (j != 0)) {
        // Arah kanan
        if (testCase.charAt(k+1) == game.get(y).get(x+1)) {
                stepsTaken++;
                right = true;
        }
        // Arah kanan bawah
        if (testCase.charAt(k+1) == game.get(y+1).get(x+1)) {
                stepsTaken++;
                rightdown = true;
        }
        // Arah bawah
        if (testCase.charAt(k+1) == game.get(y+1).get(x)) {
                stepsTaken++;
                down = true;
        }
        // Arah kiri bawah
        if (testCase.charAt(k+1) == game.get(y+1).get(x-1)) {
                stepsTaken++;
                leftdown = true;
        }
        // Arah kiri
        if (testCase.charAt(k+1) == game.get(y).get(x-1)) {
                stepsTaken++;
                left = true;
        }
// IF CURRENTLY SCANNING LEFT COLUMN
} else if ((i != 0) && (j == 0)) {
        // Arah atas
        if (testCase.charAt(k+1) == game.get(y-1).get(x)) {
                stepsTaken++;
                up = true;
        }
        // Arah kanan atas
        if (testCase.charAt(k+1) == game.get(y-1).get(x+1)) {
                stepsTaken++;
                rightup = true;
        }
        // Arah kanan
        if (testCase.charAt(k+1) == game.get(y).get(x+1)) {
                stepsTaken++;
                right = true;
        }
        // Arah kanan bawah
        if (testCase.charAt(k+1) == game.get(y+1).get(x+1)) {
                stepsTaken++;
                rightdown = true;
        }
        // Arah bawah
        if (testCase.charAt(k+1) == game.get(y+1).get(x)) {
                stepsTaken++;
```

```
                down = true;
        }
// IF CURRENTLY SCANNING BOTTOM ROW
} else if ((i == game.size()-1) && (j != 0)) {
        // Arah kiri
        if (testCase.charAt(k+1) == game.get(y).get(x-1)) {
                stepsTaken++;
                left = true;
        }
        // Arah kiri atas
        if (testCase.charAt(k+1) == game.get(y-1).get(x-1)) {
                stepsTaken++;
                leftup = true;
        }
        // Arah atas
        if (testCase.charAt(k+1) == game.get(y-1).get(x)) {
                stepsTaken++;
                up = true;
        }
        // Arah kanan atas
        if (testCase.charAt(k+1) == game.get(y-1).get(x+1)) {
                stepsTaken++;
                rightup = true;
        }
        // Arah kanan
        if (testCase.charAt(k+1) == game.get(y).get(x+1)) {
                stepsTaken++;
                right = true;
        }
// IF CURRENTLY SCANNING RIGHT COLUMN
} else if ((i != 0) && (j == game.get(i).size()-1)) {
        // Arah atas
        if (testCase.charAt(k+1) == game.get(y-1).get(x)) {
                stepsTaken++;
                up = true;
        }
        // Arah kiri atas
        if (testCase.charAt(k+1) == game.get(y-1).get(x-1)) {
                stepsTaken++;
                leftup = true;
        }
        // Arah kiri
        if (testCase.charAt(k+1) == game.get(y).get(x-1)) {
                stepsTaken++;
                left = true;
        }
        // Arah kiri bawah
        if (testCase.charAt(k+1) == game.get(y+1).get(x-1)) {
                stepsTaken++;
                leftdown = true;
        }
        // Arah bawah
        if (testCase.charAt(k+1) == game.get(y+1).get(x)) {
                stepsTaken++;
                down = true;
        }
// IF CURRENTLY SCANNING THE MIDDLE OF THE MATRIX
} else {
        // Arah atas
        if (testCase.charAt(k+1) == game.get(y-1).get(x)) {
                stepsTaken++;
                up = true;
        }
        // Arah kanan atas
        if (testCase.charAt(k+1) == game.get(y-1).get(x+1)) {
                stepsTaken++;
                rightup = true;
        }
```

```
                        // Arah kanan
                        if (testCase.charAt(k+1) == game.get(y).get(x+1)) {
                              stepsTaken++;
                              right = true;
                        }
                        // Arah kanan bawah
                        if (testCase.charAt(k+1) == game.get(y+1).get(x+1)) {
                              stepsTaken++;
                              rightdown = true;
                        }
                        // Arah bawah
                        if (testCase.charAt(k+1) == game.get(y+1).get(x)) {
                              stepsTaken++;
                              down = true;
                        }
                        // Arah kiri bawah
                        if (testCase.charAt(k+1) == game.get(y+1).get(x-1)) {
                              stepsTaken++;
                              leftdown = true;
                        }
                        // Arah kiri
                        if (testCase.charAt(k+1) == game.get(y).get(x-1)) {
                              stepsTaken++;
                              left = true;
                        }
                        // Arah kiri atas
                        if (testCase.charAt(k+1) == game.get(y-1).get(x-1)) {
                              stepsTaken++;
                              leftup = true;
                        }
                  }

                  // ITERATE THE REST OF CHARACTERS BASED ON FLAG
                  checkFlag = true;
                  ......
```

Blok kode dipisah agar dapat terbaca dengan baik

```
// ITERATE THE REST OF CHARACTERS BASED ON FLAG
checkFlag = true;
k = 1;
letterCounter = 1;
charIndexX = 0;
charIndexY = 0;
while ((k < testCase.length()) && (checkFlag)) {
      if (up) {
            charIndexX = x;
            charIndexY = y-1;
            if ((isWithinRange(charIndexX, 0, game.get(i).size())) &&
            (isWithinRange(charIndexY, 0, game.size()))) {
                  if ((game.get(y-1).get(x) == testCase.charAt(k)) &&
                  (letterCounter != testCase.length())) {
                        stepsTaken++;
                        letterCounter++;
                        y--;
                        if (letterCounter == testCase.length()) {
                              finalup = true;
                              up = false;
                        }
                  } else {
                        x = j;
                        y = i;
                        k = 0;
                        letterCounter = 1;
                        up = false;
                  }
            } else {
                  x = j;
```

```
                y = i;
                k = 0;
                letterCounter = 1;
                up = false;
        }
} else if (rightup) {
        charIndexX = x+1;
        charIndexY = y-1;
        if ((isWithinRange(charIndexX, 0, game.get(i).size())) &&
        (isWithinRange(charIndexY, 0, game.size()))) {
                if ((game.get(y-1).get(x+1) == testCase.charAt(k)) &&
                (letterCounter != testCase.length())) {
                        stepsTaken++;
                        letterCounter++;
                        x++;
                        y--;
                        if (letterCounter == testCase.length()) {
                                finalrightup = true;
                                rightup = false;
                        }
                } else {
                        x = j;
                        y = i;
                        k = 0;
                        letterCounter = 1;
                        rightup = false;
                }
        } else {
                x = j;
                y = i;
                k = 0;
                letterCounter = 1;
                rightup = false;
        }
} else if (right) {
        charIndexX = x+1;
        charIndexY = y;
        if ((isWithinRange(charIndexX, 0, game.get(i).size())) &&
        (isWithinRange(charIndexY, 0, game.size()))) {
                if ((game.get(y).get(x+1) == testCase.charAt(k)) &&
                (letterCounter != testCase.length())) {
                        stepsTaken++;
                        letterCounter++;
                        x++;
                        if (letterCounter == testCase.length()) {
                                finalright = true;
                                right = false;
                        }
                } else {
                        x = j;
                        y = i;
                        k = 0;
                        letterCounter = 1;
                        right = false;
                }
        } else {
                x = j;
                y = i;
                k = 0;
                letterCounter = 1;
                right = false;
        }
} else if (rightdown) {
        charIndexX = x+1;
        charIndexY = y+1;
        if ((isWithinRange(charIndexX, 0, game.get(i).size())) &&
        (isWithinRange(charIndexY, 0, game.size()))) {
```

```
                if ((game.get(y+1).get(x+1) == testCase.charAt(k)) &&
                (letterCounter != testCase.length())) {
                        stepsTaken++;
                        letterCounter++;
                        x++;
                        y++;
                        if (letterCounter == testCase.length()) {
                                finalrightdown = true;
                                rightdown = false;
                        }
                } else {
                        x = j;
                        y = i;
                        k = 0;
                        letterCounter = 1;
                        rightdown = false;
                }
        } else {
                x = j;
                y = i;
                k = 0;
                letterCounter = 1;
                rightdown = false;
        }
} else if (down) {
        charIndexX = x;
        charIndexY = y+1;
        if ((isWithinRange(charIndexX, 0, game.get(i).size())) &&
        (isWithinRange(charIndexY, 0, game.size()))) {
                if ((game.get(y+1).get(x) == testCase.charAt(k)) &&
                (letterCounter != testCase.length())) {
                        stepsTaken++;
                        letterCounter++;
                        y++;
                        if (letterCounter == testCase.length()) {
                                finaldown = true;
                                down = false;
                        }
                } else {
                        x = j;
                        y = i;
                        k = 0;
                        letterCounter = 1;
                        down = false;
                }
        } else {
                x = j;
                y = i;
                k = 0;
                letterCounter = 1;
                down = false;
        }
} else if (leftdown) {
        charIndexX = x-1;
        charIndexY = y+1;
        if ((isWithinRange(charIndexX, 0, game.get(i).size())) &&
        (isWithinRange(charIndexY, 0, game.size()))) {
                if ((game.get(y+1).get(x-1) == testCase.charAt(k)) &&
                (letterCounter != testCase.length())) {
                        stepsTaken++;
                        letterCounter++;
                        x--;
                        y++;
                        if (letterCounter == testCase.length()) {
                                finalleftdown = true;
                                leftdown = false;
                        }
                } else {
```

```
                        x = j;
                        y = i;
                        k = 0;
                        letterCounter = 1;
                        leftdown = false;
                }
        } else {
                x = j;
                y = i;
                k = 0;
                letterCounter = 1;
                leftdown = false;
        }
} else if (left) {
        charIndexX = x-1;
        charIndexY = y;
        if ((isWithinRange(charIndexX, 0, game.get(i).size())) &&
        (isWithinRange(charIndexY, 0, game.size()))) {
                if ((game.get(y).get(x-1) == testCase.charAt(k)) &&
                (letterCounter != testCase.length())) {
                        stepsTaken++;
                        letterCounter++;
                        x--;
                        if (letterCounter == testCase.length()) {
                                finalleft = true;
                                left = false;
                        }
                } else {
                        x = j;
                        y = i;
                        k = 0;
                        letterCounter = 1;
                        left = false;
                }
        } else {
                x = j;
                y = i;
                k = 0;
                letterCounter = 1;
                left = false;
        }
} else if (leftup) {
        charIndexX = x-1;
        charIndexY = y-1;
        if ((isWithinRange(charIndexX, 0, game.get(i).size())) &&
        (isWithinRange(charIndexY, 0, game.size()))) {
                if ((game.get(y-1).get(x-1) == testCase.charAt(k)) &&
                (letterCounter != testCase.length())) {
                        stepsTaken++;
                        letterCounter++;
                        x--;
                        y--;
                        if (letterCounter == testCase.length()) {
                                finalleftup = true;
                                leftup = false;
                        }
                } else {
                        x = j;
                        y = i;
                        k = 0;
                        letterCounter = 1;
                        leftup = false;
                }
        } else {
                x = j;
                y = i;
                k = 0;
                letterCounter = 1;
```

```
                leftup = false;
        }
}
if (letterCounter == testCase.length()) {
        endComp = System.nanoTime();
        compDur = endComp - startComp;
        elapsedTime = (float)compDur / (float)1000000;

        System.out.println("========== Word Found! ==========");
        System.out.println("Found " + testCase + " at X:" + (j+1) + " and Y:"
        + (i+1));
        System.out.println("Program took " + stepsTaken + " step(s) to find
        the word");
        System.out.print("Exited in ");
        System.out.printf("%.5f", elapsedTime);
        System.out.println(" ms");

        ansX = j;
        ansY = i;
        for (i=0;i<testCase.length();i++) {
                if (finalup) {
                        currentChar = testCase.charAt(i);
                        answer[ansY][ansX] = String.valueOf(currentChar);
                        color_codes[ansY][ansX] = ANSI_BLUE;
                        ansY--;
                } else if (finalrightup) {
                        currentChar = testCase.charAt(i);
                        answer[ansY][ansX] = String.valueOf(currentChar);
                        color_codes[ansY][ansX] = ANSI_CYAN;
                        ansX++;
                        ansY--;
                } else if (finalright) {
                        currentChar = testCase.charAt(i);
                        answer[ansY][ansX] = String.valueOf(currentChar);
                        color_codes[ansY][ansX] = ANSI_GREEN;
                        ansX++;
                } else if (finalrightdown) {
                        currentChar = testCase.charAt(i);
                        answer[ansY][ansX] = String.valueOf(currentChar);
                        color_codes[ansY][ansX] = ANSI_MAGENTA;
                        ansX++;
                        ansY++;
                } else if (finaldown) {
                        currentChar = testCase.charAt(i);
                        answer[ansY][ansX] = String.valueOf(currentChar);
                        color_codes[ansY][ansX] = ANSI_PURPLE;
                        ansY++;
                } else if (finalleftdown) {
                        currentChar = testCase.charAt(i);
                        answer[ansY][ansX] = String.valueOf(currentChar);
                        color_codes[ansY][ansX] = ANSI_RED;
                        ansX--;
                        ansY++;
                } else if (finalleft) {
                        currentChar = testCase.charAt(i);
                        answer[ansY][ansX] = String.valueOf(currentChar);
                        color_codes[ansY][ansX] = ANSI_BRIGHT_RED;
                        ansX--;
                } else if (finalleftup) {
                        currentChar = testCase.charAt(i);
                        answer[ansY][ansX] = String.valueOf(currentChar);
                        color_codes[ansY][ansX] = ANSI_YELLOW;
                        ansX--;
                        ansY--;
                }
        }
```

```
for (i=0;i<game.size();i++) {
        for (j=0;j<game.get(i).size();j++) {
                System.out.print(color_codes[i][j] + answer[i][j] +
                ANSI_RESET);
                System.out.print(" ");
        }
        System.out.println();
}

finalup = false;
finalrightup = false;
finalright = false;
finalrightdown = false;
finaldown = false;
finalleftdown = false;
finalleft = false;
finalleftup = false;
checkFlag = false;
```

Closing bracket tidak teratur akibat kode yang terpisah – pisah

```
        }
        k++;
}
}
}
}
}
}

} catch (IOException e) {
        System.out.println("File not found!");
}
endProg = System.nanoTime();
progDur = endProg - startProg;
fileDuration = (float)progDur/(float)1000000;
System.out.println("Program fully exited in " + fileDuration + " ms");
}
}
```

- Kode dapat terlihat lebih jelas dalam file wordPuzzle.java

BAB III
Screenshot Input dan *Output*

3.1.Ukuran kecil 1

Gambar	Keterangan
K J V T O J B L P O E Q N R L R I Y A U U O R U L E R D O G E V N C V P O F K T Q X L W W S G I H X E K H S Y O E A V Y A X V U Y I E N B S Q M I L T R N M Y F P V G U X W L Y D F E D L F N V B N A H G R W M K W Y M D I S Y B X M K L F P Y L T J P S O C P Y V A Z Y I N E X F X H R L I N D K C N H Z G F C P D M O U S A F Z O K B D U H K Q D J W W S W F T P G B D I N T U J M B D O E E T U N B S S V P E N C I L R X P Q E O W T H R Z H R L O S S E F N Y Q Y W R Y I X J K L X C O B E S K A M U F M H O B T Y Q V BOOK ERASER HIGHLIGHTER PEN PENCIL RULER SCISSORS	Isi file small1.txt. Tema dari word puzzle adalah nama beberapa alat tulis kantor.
Please input your file name in the test folder: small1.txt	Input nama file ke dalam program
- - - - - I - - - - - - - - - - - - - - - - G - - - - - - - - - - - - - - - - H - - - - - - - - - - - - - - - - T - - - - - - - - - - - - - - - P E N C I L - - - - - - - - - - - - R - ========== Word Found! ========== Found SCISSORS at X:15 and Y:7 Program took 119 step(s) to find the word Exited in 0.35040 ms - - - - - - B - - - - - - - - R - - - - - O R U L E R - - - E - - - - - O - - - - - - - - S - - H - - K - - - - - - - - A - - - - I - - - - - - - - - R - - - - - - G - - - - - - - E - - - - - - - - H - - - - - - - - - S - - - - - L - - - - - - - - C - - - - - - I - - - - - - - I - - - - - - - G - - - - - - S - - - - - - - - H - - - - - S - - - - - - - - - T - - - - O - - - - - - - - - P E N C I L R - - - - - - - - - - - R - - - S - Program fully exited in 190.6704 ms Press any key to continue . . .	Bagian akhir dari eksekusi program. Bagian atas tidak terlihat karena output program akan mencetak array setiap kali sebuah kata ditemukan.

3.2.Ukuran kecil 2

Gambar	Keterangan
W Z M G S L E C Z D Q U R V I S Y X G W D G A J Y I H A N P H T J I Z Q D B N T P S C U L Z Z Z W T F I I W C B N H A C O H Z J Z G R N Q V R P K W N C S C V Y B F E G V A G E Q A B O I L E R G T X U Q R Z Y G S D K E D A L S L I S N E T U H H O U V J G V L F H J Z R A H C E D G A K E V C U X Y X W P Q X R X V W S W A E W A A E B S U F K S V O B W G S V T Q W D I I Y D E R R Q W K H A O U H H N X N J E G C F S W P E Y T P N T N X K H S I F Q C S Z T R S K Q Y G C R K M D B U P R A Q Z O B I X K B G R J R B BOILER CABINET DISHWASHER FRIDGE MICROWAVE SINK STOVE UTENSILS	Isi file small2.txt. Tema dari word puzzle adalah nama objek yang berada di dapur.
Please input your file name in the test folder: small2.txt	Input nama file ke dalam program
- - - - - - - - - E - - A - - - - - - - - - - - - R - - W - - - E - - - - - S - - - - - O - - - - V - - - - - I - - - - R - - - - - O - - - - - N - - - C - - - - - - T - - - - - K - - I - - - - - - - S - - - - - - - M - - - - - - - - - - - - - - - - - - ========== Word Found! ========== Found UTENSILS at X:8 and Y:8 Program took 128 step(s) to find the word Exited in 0.27920 ms - - - - - - E C - D - - - - - - - - - - - G A - - I - - - - - - - - - - D B - - - S - - - - - - - - - I I - - - - H - - - - - - - - R N - - - - - W - - - - - - - F E - - - - - - A B O I L E R - T - - - - - - - S - - E - - - S L I S N E T U - H - - V - - - - - - - - - - - - E - - A - - - - - - - - - - - - R - - W - - - E - - - - - S - - - - - O - - - - V - - - - - I - - - - R - - - - - O - - - - - N - - - C - - - - - - T - - - - - K - - I - - - - - - - S - - - - - - - M - - - - - - - - - - - - - - - - - - Program fully exited in 215.09929 ms Press any key to continue . . .	Bagian akhir dari eksekusi program. Bagian atas tidak terlihat karena output program akan mencetak array setiap kali sebuah kata ditemukan.

3.3.Ukuran kecil 3

Gambar	Keterangan
E J F M V I P R P W T N I X K I G D W Z A B L V R F X Q J K O A B B N S S S Z G U I Y S K T X U Z A Q N J V H I Z B P P B V U A M Q J V I L X Q B B P I F Q Q X P U F T E C J P N R X M L A O K X C Y T A P H O T O S T A L K N X L I A P B D B W J E I G L O A F A K H Z R L Z Z K U M O T W W H G F M A O H E N I A B R I T G M D P W K R P A T F B K P E K K P H E F O N L P C T O D F T G I I R N R Z B E D H N I A T R U C R S R B Z Y D J A B H I E M R O G I G Q Y B C L I Z I N P S P M M H O B M O H Z R E S A Z Z Z H BED BLANKET CHAIR CURTAIN DRAWER LAMP MIRROR PHOTOS PILLOW RUG TABLE	Isi file small3.txt. Tema dari word puzzle adalah nama nama objek di kamar tidur.
Please input your file name in the test folder: small3.txt	Input nama file ke dalam program
- - - - - R - - - K - - - - - W - - - - A - - - N - - - - - - - - - - W - R - A - - - - - - - - - - E - O - L - C - - - - - G - - R - R - B E D H N I A T R U C - - R - - - - - A - - - - - R - - I - - - - - - I - - - - - - - M - - - - - - - R - - - - - - - ========== Word Found! ========== Found TABLE at X:4 and Y:6 Program took 89 step(s) to find the word Exited in 0.40440 ms - P - - - - - - - - - - - - - - - P I - - - - - - - T - - - - - - - M L - - - - - - - A P H O T O S T A L - - - - - - - B D - - - E - - L O - - - - - - R L - - K - - - - - W - - - - A - - E N - - - - - - - - - - W - R - A - - - - - - - - - - E - O - L - C - - - - - G - - R - R - B E D H N I A T R U C - - R - - - - - A - - - - - R - - I - - - - - - I - - - - - - - M - - - - - - - R - - - - - - - Program fully exited in 290.2719 ms Press any key to continue . . .	Bagian akhir dari eksekusi program. Bagian atas tidak terlihat karena output program akan mencetak array setiap kali sebuah kata ditemukan.

3.4.Ukuran sedang 1

Gambar	Keterangan
D J Y X A H B Q J I Q E Y O G Y A K A R T A A G P Y Y K O Y R F N G E I U U Y M C Q U A T S M W A M G W J O V A M W C J Y C L J C X L N C P B A O G N A R E G G N A T U Y Z H B J I D S A T R L I R L A Z K O Z L N H E I V J A E A R X T G L F W I G C K Z I O A A M A X Y K T U K N Q X M N V G Z K P K Y K S L I X Z M A S A X A Z U I O G H B A R H H A H W Y Z R N R D Y X M V X N E R S L Y I Q W M O H C B A L T Z E B G K R D G H D E S U K E M C S M D I K A F T T B E P M I T S R X J L B Z E N J X Y O T J S H T M S A Z V B Z O C Q S K Y X P O A N F I T U L A N D I T K Z A M F Z J F U S G U E X B Z M W O P I I P X S L L M T H N P V F W I R V M M X G W U O R I N M X Y Y A E R A U I C K H W R T A G N N Q C D J D R G S T B Y G D D M F A F F Z X B D R L T X T O C T N U H D V B A N D U N G E Y R Q N I U U V E Y A P R R L T M Q R I P C K P D K G P M G T L F B D D V B Q J E O E W G Z H V D J L J R H J L Z X F W O B K S H O H S Q J K E G C Y K Q O C L N B O D H P G U D K BANDUNG BANTEN BOGOR DEPOK JAKARTA MADIUN SEMARANG SURABAYA TANGGERANG YOGYAKARTA	Isi file medium1.txt. Tema dari word puzzle adalah nama kota – kota di Indonesia.
Please input your file name in the test folder: medium1.txt_	Input nama file ke dalam program
- - - - - - - - - - - - - - - - - - - K - ========== Word Found! ========== Found YOGYAKARTA at X:13 and Y:1 Program took 23 step(s) to find the word Exited in 0.29880 ms - - - - A - B - - - - - Y O G Y A K A R T A - - - - Y - O - A - G - B - O G N A R E G G N A T - - - - - J - - - A - R - - - - - - - - - - - - - - - - - A - - R - - G - - - - - - - - - - - - - - - - - K - U - N - - - - - - - - - - - - - - - - - - - A S A - R - A - T - - - - - - - - - - - - - - - - - - M - - - A - - - - - - M - - - - - - - - - E - - - - - - - - - - - - A - - - - - - - S - - - - - - - - - - - - - - D - I - - - - - - - - - N - - - - - - - - - - - - U - - - - - - - - - E - - - - - - - - - - - N - - - - - - - - - T - - - - - - - - - - - - D - - - - - - - - N - - - - B A N D U N G E - - - - - - - - - - A - - - - - - - - - P - - - - - - - - - - - - B - - - - - - - O - K - Program fully exited in 409.13672 ms Press any key to continue . . .	Bagian akhir dari eksekusi program. Bagian atas tidak terlihat karena output program akan mencetak array setiap kali sebuah kata ditemukan.

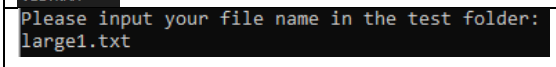
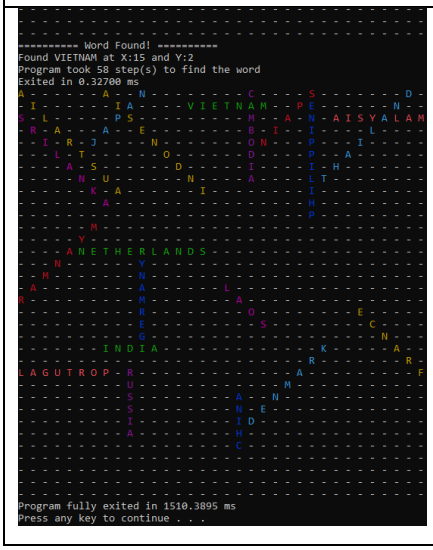
3.5.Ukuran sedang 2

Gambar	Keterangan
K V A O R V T Z J Z O B I W M W J I O V H C G J H Z N N I C K E L R R D Z N D L N C X M T M H N I C X L G F N P E A J R I N A I D I Y I D Y V Y O X R O M C M P H I D R R P C E T F F W T D M G G A I S G I P X B O P P T K W B N I C U Y W Q P J R S K N O Q V K M E P C I D H H H M Y H F I Q F W N R C O B A L T J J R T K V T A L B C K R N I X I R I E C Y F J W T F M M Z G G W G G I K K V M T H J R B R B C H Y B G M N P E D J O B C Q J F G M S C W T E K D N T J E N O C I L I S S S U L V V J O Z G G D E D N S F M H Q M C H I N V S N S L C A I Q U I E C I H R C Z C L V L N Z K G L K H Y D R O G E N U X A B E F S L C U F A N H V D C H T O Q Q G M L H G C H H G N B A C H M V B Z I R V U T A S R T Q L K A R E T I U X N O F I T A F P M I O R R R S M L O G I U E B D Y Q I Z G K S U H P Z A F S J S D Y F R S X P O N Q S A H M T Z J K S R J O K D X R K J A U O O H O M W B O Z Q S M S V S S I O J Q H R X J S J S S H W J M H D L Y S X F E S A P P C V N K D S X C G Q N C CALSIUM CARBON COBALT COPPER HELIUM HYDROGEN MAGNESIUM NICKEL NITROGEN OXYGEN SILICON SODIUM	Isi file medium2.txt. Tema dari word puzzle adalah nama elemen di tabel periodik.
Please input your file name in the test folder: medium2.txt_	Input nama file ke dalam program
- - - - - O - ========== Word Found! ========== Found SODIUM at X:1 and Y:21 Program took 461 step(s) to find the word Exited in 0.46710 ms - N I C K E L R - - - - - - - C - - - - - - - - - - - - - - E - - - - - A - - - - - - - - - - - - - - - - P - - - R - - - - - - - - - - - - - - - - - - P - B - O - - - - - - - - - - - - M - - - - - - - N - C O B A L T - - - - - - - A - G - N - - - - - - - - - - M - - - - - - - - - - E N O C I L I S - - U - - - - - - - - - - - N S - - - - - - - I - - - - - - - - - - - - E - I - - C - - L - - - - - - - - H Y D R O G E N U - A - E - - - - - - - - - - - - - - O - - - M L H - - - - - N - - - - M - - - - R - - - - S - - - - - - - E - - U - - - - - T - - - - I - - - - - - - - G I - - - - - - I - - - - U - - - - - - - - D Y - - - - - - N - - - - M - - - - - - - O - - X - - - - - - - - - - - - - - - - - S - - - - O - Program fully exited in 462.9929 ms Press any key to continue . . . _	Bagian akhir dari eksekusi program. Bagian atas tidak terlihat karena output program akan mencetak array setiap kali sebuah kata ditemukan.

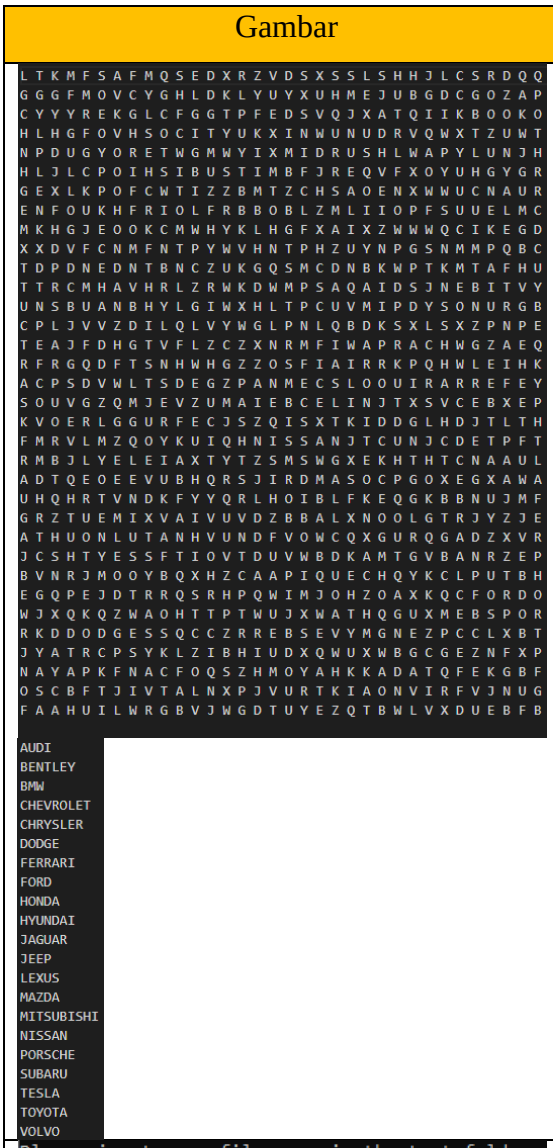
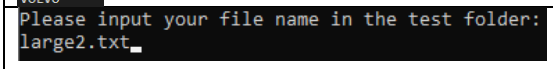
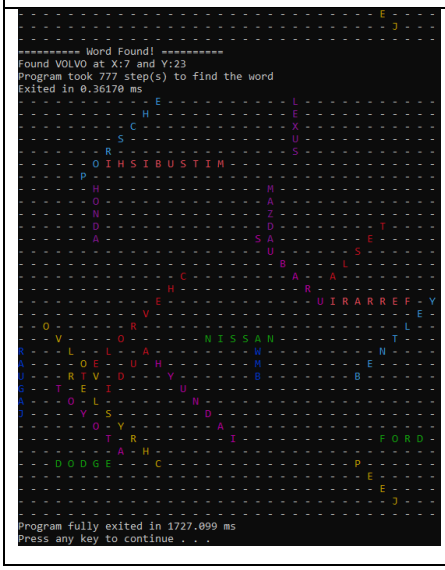
3.6.Ukuran sedang 3

Gambar	Keterangan
J S P B C S H M X T C G X Z R V A P J V Z P C Z N Y U G B S I M T S D Z U T Z D I T N H E R Y Y J L K K L H Y X S L A G J V T C P G T A Q M G C Z E B V X U W P R B M C K B F K A F L E B J J H T A I P X I D K E E G J L M P V Y N P K C Z C C K L K Q F E A L K X A S S I Q M V E R P O S A C W G N L T D T O Q A Z N Z M V Z H P R Y L G C M J C B O R J H P H O Z Z W C Q J Z V W T X T B A A O K F O C J L S V A Z B M M A P K P S O R L N R E T Z U V R Q X G K Q Q J X S M I G F L I S P D E U X N T K L L Z N V S D P M Y N E I U K O N V Y C R I S P S T V D K N V K S I Y L O G W E E K H B K A R H W V N F U D E R L L G W L K C V H K E T A Q S D X Z C S A U N P O W T A W N G I H M M H A G C N S C W N Z B M B Z E C N K Q B V E M Q T T V O L A K G M A U T W U O A U K W T T Q A I O R H I N Z N I M D E O B R A J O L W C V Y J J B R R D A M G A C E G A T S A P W T S K P R F P J U Y T L C Q E K M M Y T A D H D D V M V R G K N A S B R J R P L L B S A P M U N D K N H J B K O I CANDY COOKIE CRISPS DUMPLING FRIES HAMBURGER HOTDOG MEATBALL NOODLE PASTA PIZZA	Isi file medium3.txt. Tema dari word puzzle adalah nama makanan umum.
Please input your file name in the test folder: medium3.txt_	Input nama file ke dalam program
- E - R - ========== Word Found! ========== Found PIZZA at X:1 and Y:6 Program took 122 step(s) to find the word Exited in 0.41540 ms - M - E E - - - - P - - - - - - - - - - - - - - - - A L - - - - - I - - - - - - - - - - - - - - - T D - - - - - - Z - - - - - - - - - - - - - - B O - - H - - - - Z - - - - - - - - - - - - - A O - F O - - - - - A - - - - - - - - - - - - L N R - T - - - - - - - - - - - - - - - G - L I - - D - - - - - - - - - - - - - - - - N E - - - O - - - C R I S P S - - - - - - - S I - - - G - - - - - - - - - H - - - - - - - - L - - - - - - - - - E - A - - - - - - - - - - P - - - - - - - I - M - - - - - - - C - - - - M - - - - - K - B - - - - - - - - - A - - - - U - - - O - U - - - - - - - - - - - N - - - - D - O - R - - - - - - - - - - - - - D - - - - C - G A T S A P - - - - - - - - - - Y - - - - E - - - - - - - - - - - - - - - - - - - R - Program fully exited in 431.4083 ms Press any key to continue . . .	Bagian akhir dari eksekusi program. Bagian atas tidak terlihat karena output program akan mencetak array setiap kali sebuah kata ditemukan.

3.7.Ukuran besar 1

Gambar	Keterangan
 A P L T B U B A Y V N I K E L F Y Q H C K D F W S W P K X N M N D U Q I Y P A S K F I A L P Y L V I E T N A M F P P E W E S D F D N Z E S I L G G P Z Y P S X Z Y S W N H Q R M Y E A S N T A I S Y A L A M A R C A W O D A I L E Q Y G B F Q J A B W I Z R I V I E N L R T V U A C I S R S J M W F H N U V K M Y A F O N U H V P P J Z I E X B R F F C T L J T L E S C K N O D Q S M K A D U P C V P E L A Q F Y Q T P F F D W A U S Z B Q J U J D Y U W G B I N B X D I J H A I T H N V N L E Y V J N B U Y S H Y R Q N P F L H A K A N F L T D Z W X R A R C I B P A M R K Y A I N X A O O I U O E U G H G J I E H O K S M Z Q W E A V C Z R A A X V A K F Z K X O U U X Q T A C H M E B O N M R O J V K D O F A E N E G Z C A S W O C G D C R T I Y P W R K H A M Q E Q T I C T V X M Q Z Y E D H D Z S R Z I Z C S G B G T W K R U V S C S G T Z U T Y V R B G Q F F X D P V O Y Z M X C K F U R L Q B H F X V R C T X A N E T H E R L A N D S V V R X G K Y O G D Y B F O P K I S Y W R N T P K R E X Y U W P A Y R Z H C S U Q P F J I I D T T F D K J S M N J U L Z O A N B J W B A W T A H D L S F Y J N G C F G W H Z H A C J C C F A B S A L F A R Z K L P E I H D D X Z V N N X C R G J R R R H G A E E X W M X K N N W B C A Y B G E O I E L B K X F B I T A K T C W A N H Y J R Q N N J D R Y C O P Q G W A R N K E Z B G F G T T W T V I P C T D E S N H S R K F E O S F N C B O W L F C P G F V B Q X I O C O A S X G J N Z P I R S V B A C X Z E C S J A E N A I Q K M W W N M P I N D I A D V K I C U N X W S A E V K B J W R Z A Z V K G B U D M L U S C Z Y T Z N J F X C Y Q U J A R Y Q F C W V U R O L A G U T R O P S R M W F D H R R W U O N S J A C A O K Q A M H H F W V U C K A R B X U K C P X U J V C G Z C D M Y H E E K I D Q I M M S L J M O G T Y L S F X C F K R W Z A T Y N I W Z W W B A G N M W Q P K X P S M W E A S P X G J B Q O C N O E T M F U O R A H V B A W N O N U S U U E V B I Y S S V O Q V P I D P H B R X F X M D N X M E Z L O G W F J N A M A L S C S N M G I H D O A B U V W G S Z I K E H U O Y D C H Q A Q J H U N X B X A U J C H U G I B X X K O O F G V B P Z K X A Z M V T T Y L I V G A W S O U V N G B W T F H X G W O A E O K M O H N I O U K A O N H T L C U U O P G S T F E Y L X A W M X J Q B T O N V M I W X C N G P E P A O J J T L X B F R M Z W E H R L E L C R H A U R Y W F Y Z Q K Y I O D X Y H B Z B G C A O F N H E Y Y E AUSTRALIA CAMBODIA CHINA DENMARK FRANCE GERMANY INDIA INDONESIA JAPAN LAOS MALAYSIA MYANMAR NETHERLANDS PHILIPPINES PORTUGAL RUSSIA SPAIN SRILANKA THAILAND VIETNAM	Isi file large1.txt. Tema dari word puzzle adalah nama negara di seluruh dunia.
	Input nama file ke dalam program
	Bagian akhir dari eksekusi program. Bagian atas tidak terlihat karena output program akan mencetak array setiap kali sebuah kata ditemukan.

3.8.Ukuran besar 2

Gambar	Keterangan
 L T K M F S A F M Q S E D X R Z V D S X S S L S H H J L C S R D Q Q G G G F M O V C Y G H L D K L Y U Y X U H M E J U B G D C G O Z A P C Y Y Y R E K G L C F G G T P F E D S V Q J X A T Q I I K B O O K O H L H G F O V H S O C I T Y U K X I N W U N U D R V Q W X T Z U W T N P D U G Y O R E T W G M W Y I X M I D R U S H L W A P Y L U N J H H L J L C P O I H S I B U S T I M B F J R E Q V F X O Y U H G Y G R G E X L K P O F C W T I Z Z B M T Z C H S A O E N X W W U C N A U R E N F O U K H F R I O L F R B B O B L Z M L I I O P F S U U E L M C M K H G J E O O K C M W H Y K L H G F X A I X Z W W W Q C I K E G D X X D V F C N M F N T P Y W V H N T P H Z U Y N P G S N M M P Q B C T D P D N E D N T B N C Z U K G Q S M C D N B K W P T K M T A F H U T T R C M H A V H R L Z R W K D W M P S A Q A I D S J N E B I T V Y U N S B U A N B H Y L G I W X H L T P C U V M I P D Y S O N U R G B C P L J V V Z D I L Q L V Y W G L P N L Q B D K S X L S X Z P N P E T E A J F D H G T V F L Z C Z X N R M F I W A P R A C H W G Z A E Q R F R G Q D F T S N H W H G Z Z O S F I A I R R K P Q H W L E I H K A C P S D V W L T S D E G Z P A N M E C S L O O U I R A R R E F E Y S O U V G Z Q M J E V Z U M A I E B C E L I N J T X S V C E B X E P K V O E R L G G U R F E C J S Z Q I S X T K I D D G L H D J T L T H F M R V L M Z Q O Y K U I Q H N I S S A N J T C U N J C D E T P F T R M B J L Y E L E I A X T Y T Z S M S W G X E K H T H T C N A A U L A D T Q E O E E V U B H Q R S J I R D M A S O C P G O X E G X A W A U H Q H R T V N D K F Y Y Q R L H O I B L F K E Q G K B B N U J M F G R Z T U E M I X V A I V U V D Z B B A L X N O O L G T R J Y Z J E A T H U O N L U T A N H V U N D F V O W C Q X G U R Q G A D Z X V R J C S H T Y E S S F T I O V T D U V W B D K A M T G V B A N R Z E P B V N R J M O O Y B Q X H Z C A A P I Q U E C H Q Y K C L P U T B H E G Q P E J D T R R Q S R H P Q W I M J O H Z O A X K Q C F O R D O W J X Q K Q Z W A O H T T P T W U J X W A T H Q G U X M E B S P O R R K D D O D G E S S Q C C Z R R E B S E V Y M G N E Z P C C L X B T J Y A T R C P S Y K L Z I B H I U D X Q W U X W B G C G E Z N F X P N A Y A P K F N A C F O Q S Z H M O Y A H K K A D A T Q F E K G B F O S C B F T J I V T A L N X P J V U R T K I A O N V I R F V J N U G F A A H U I L W R G B V J W G D T U Y E Z Q T B W L V X D U E B F B AUDI BENTLEY BMW CHEVROLET CHRYSLER DODGE FERRARI FORD HONDA HYUNDAI JAGUAR JEEP LEXUS MAZDA MITSUBISHI NISSAN PORSCHE SUBARU TESLA TOYOTA VOLVO	Isi file large2.txt. Tema dari word puzzle adalah nama brand mobil di seluruh dunia.
	Input nama file ke dalam program
	Bagian akhir dari eksekusi program. Bagian atas tidak terlihat karena output program akan mencetak array setiap kali sebuah kata ditemukan.

3.9.Ukuran besar 3

Gambar	Keterangan
D D L M P S G M I V P U Q D C R V Y T R O H S M I H F M Z T I Q Z O M A E Z Z F L B J T D I R F J H X S A O S F C G H R S N K T D S H R E D N J L B A R S M Q M B R Q G Y M X Y R G G O K W M J K D A T S V Y I J I S S B C S L D A K B V D C W R S U C B F B K A B U R O P F F O J A H B V V T O K O E N J R T A P A M B J A M J H Z I S B P G A L I X K B U N N M P D T W E O T U I Q Y P U E E W F X E L D I C E O H Q V F T O F I F F K C Q Y B Z A D O Z J Y T R A E Y M Y N V A R Y B O G J U D G E X H Z O G N Y J I J N A D Q C O W H N E Z B I Q O E A R J A J K U P L U S Z X G U T Y A H T N A N G D U L X G V J U U R J Z O P C G G H J G E O K E A N L Z X H G N W G Q T T N K Q W R E Y U I U D E C V R V L D A Y P N H G U I H J F F S L Q Q A G X W F H B P R Z I C N S H U R U O L B C W I M E F J L M Z M I I R M W S T R K Z B E P E M B E V T W N M H M A P M F P A Z I K J W W H D I L M W G M L C P B A E I E O O W T W T Z U K A G U Y B N F N F L N V H B W O X X X P U L V F M Q L H K G Y L R J G U A R D I A N O X H Z Z W Z M C A L L W M T U Y P N V G P N B E T T G X Y J P E B K U K W K G H X J I C Y Y R Z E B B M A Q S D O U M M W H C T M K Q D Z J U B Q Y K Z T D E Q Y F H I V O J T O U C Y A M V B O A Q C A E Q Y W V F A X O B L E Q Y T R U G Y A X Y E Y Z A Z B H G O P O D V C A N C D D A V A B S Y H N M B Q C M X Y O G E J V X U U Y U M H Z M X P D N N H E O B H S Z W T L D E O L K O B C A N E T V V I J M K N Y M R S R U B K T X Q M Y B A X B W T N G E B V T B C L S K A H T T J P L T F Y L J E U Z G D F M T P C U T S T V P C Q V V C N A A Y L C N K L A R Y H T T R C D K N K X W H U Y E G O E U K G V I D X V O E H X N I D O D M N V S F U B G P E G I P S P O G Z G O M U E I T Y K P L Y H L Z H W F U O V I B R S C I A A B J L G I S O Q E C R H G X W X Y Z P V H J I F J N C Z T X N I L E R B ARES BUCKY BULLDOG CLASSIC FRENZY GHOST GUARDIAN JUDGE MARSHAL ODIN OPERATOR PHANTOM SHERRIF SHORTY SPECTRE STINGER VANDAL	Isi file large3.txt. Tema dari word puzzle adalah nama senjata di game Valorant.
Please input your file name in the test folder: large3.txt	Input nama file ke dalam program
- - N I D O - - - - - - - B - - - - - P - - - - - - O - S - - - - - - - - G - ========== Word Found! ========== Found VANDAL at X:19 and Y:26 Program took 796 step(s) to find the word Exited in 0.39060 ms - - - - - S - - - - - - - - - C - - Y T R O H S M - - - - - - - - - - - - - E - - - - - - - - - I - - - - - - - A - - - - - - - - - - - - - - - R - - - - - - - - - S - - - - - R - - - - - - - - - - - - - - - - - A - - - - - - - - - S - - S - O - A H - P - A L - E L - - C - - - - - - F - R - - - M - - - - - R - - - - J U D G E - - - - - - - - - - - - - A - - - O - - - E - - - - - - - - - - - - - - - - - - S - - - - T - - - T - - N - H - - - O - - - N - Z - E - - R - - - A Y - R - - - - - H - R - R - - - - - P E - I - - - G - F - N - G U A R D I A N - T - S - L - - - - - - G - A - - - - - H - D - - - E O B - N Y - R S - U - K A - T T - - L - C - - V C - - - - L - U - - - - E - - - - - - D - - - - - - N I D O - - - - - - - B - - - - - P - - - - - - - O - S - - - - - - - - G - Program fully exited in 1068.7767 ms Press any key to continue . . .	Bagian akhir dari eksekusi program. Bagian atas tidak terlihat karena output program akan mencetak array setiap kali sebuah kata ditemukan.

BAB IV
Link Kode Program

Kode program dapat dilihat pada halaman github berikut

https://github.com/YakobusIP/Tugas-Kecil-Stima-1-Word-Puzzle.git

BAB V
Daftar Referensi

Munir, Rinaldi. 2022. Algoritma *Brute Force*. Diakses pada 24 Januari 2022, dari https://informatika.stei.itb.ac.id/~rinaldi.munir/Stmik/2021-2022/Algoritma-Brute-Force-(2022)-Bag1.pdf.