IF2211 – Strategi Algoritma

Tugas Kecil 1 Penyelesaian Word Search Puzzle dengan Algoritma Brute Force



Oleh:

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I. Algoritma Brute Force dalam Penyelesaian Word Search Puzzle

Algoritma *Brute Force* merupakan algoritma dengan pendekatan yang lempang atau *straightforward* untuk memecahkan suatu persoalan. Salah satu pemanfaatan algoritma ini adalah untuk menyelesaikan Word Search Puzzle. Dalam program ini, huruf-huruf pada Word Search Puzzle disimpan di dalam matriks dua dimensi, sedangkan kata-kata yang merupakan jawabannya disimpan di dalam sebuah larik. Kata-kata dalam Word Search Puzzle bisa ditemukan dalam delapan arah, yaitu vertikal ke atas, vertikal ke bawah, horizontal ke kanan, horizontal ke kiri, diagonal ke kanan atas, diagonal ke kanan bawah, diagonal ke kiri atas, dan diagonal ke kiri bawah. Oleh karena itu, terdapat 8 metode dalam kelas WordSearchPuzzle yang masing-masing memeriksa kemungkinan delapan arah tersebut. Langkahlangkah penyelesaiannya adalah sebagai berikut:

- 1. Untuk setiap kata, mula-mula disejajarkan dengan huruf paling ujung pada matriks yang bergantung pada arah pencarian. Rinciannya adalah sebagai berikut:
 - a. Horizontal ke kanan: dilakukan pada setiap baris mulai dari baris pertama dan huruf paling ujung kiri
 - b. Horizontal ke kiri: dilakukan pada setiap baris mulai dari baris pertama dan huruf paling ujung kanan
 - c. Vertikal ke atas: dilakukan pada setiap kolom mulai dari kolom terakhir dan huruf paling ujung kiri bawah
 - d. Vertikal ke bawah: dilakukan pada setiap kolom mulai dari kolom pertama dan huruf paling ujung kiri atas
 - e. Diagonal ke kanan bawah: dilakukan pada setiap baris mulai dari baris pertama dan huruf paling ujung kiri. Khusus baris pertama akan dilakukan untuk tiap kolomnya.
 - f. Diagonal ke kiri bawah: dilakukan pada setiap baris mulai dari baris pertama dan huruf paling ujung kanan. Khusus baris pertama akan dilakukan untuk tiap kolomnya.
 - g. Diagonal ke kanan atas: dilakukan pada setiap baris mulai dari baris terakhir dan huruf paling ujung kiri. Khusus baris terakhir akan dilakukan untuk tiap kolomnya.
 - h. Diagonal ke kiri atas: dilakukan pada setiap baris mulai dari baris terakhir dan huruf paling ujung kanan. Khusus baris terakhir akan dilakukan untuk tiap kolomnya.
- 2. Lalu, setiap elemen matriks ditelusuri kesesuaian huruf dengan kata pada kunci jawaban. Hal ini dilakukan dengan membandingkan setiap huruf pada matriks dengan huruf pada kata pada kunci jawaban. Rinciannya sebagai berikut:
 - a. Horizontal ke kanan: ditelusuri ke kolom berikutnya (ke kanan)
 - b. Horizontal ke kiri: ditelusuri ke kolom sebelumnya (ke kiri)
 - c. Vertikal ke atas: ditelusuri ke baris sebelumnya (ke atas)
 - d. Vertikal ke bawah: ditelusuri ke baris setelahnya (ke bawah)
 - e. Diagonal ke kanan bawah: penelusuran dengan melakukan increment pada baris dan kolom
 - f. Diagonal ke kiri bawah: penelusuran dengan melakukan *increment* pada baris dan *decrement* pada kolom
 - g. Diagonal ke kanan atas: penelusuran dengan melakukan *increment* pada kolom dan *decrement* pada baris
 - h. Diagonal ke kiri atas: penelusuran dengan melakukan decrement pada baris dan kolom

Hal ini dilakukan sampai semua yang huruf dibandingkan cocok dengan huruf pada kata dalam kunci jawaban (kata berhasil ditemukan) atau huruf tidak cocok dengan huruf pada kata dalam kunci jawaban (tidak ada kecocokan).

3. Jika tidak ada kecocokan dan pencarian belum mencapai batas, dilakukan pergeseran ke huruf berikutnya dengan ketentuan seperti rincian pada langkah dua lalu kembali dilakukan langkah dua.

II. Source Code Program

A. File WordSearchPuzzle.java

```
java.io.File;
      java.io.FileNotFoundException;
      java.util.ArrayList;
     java.util.Arrays;
     java.util.List;
     java.util.Scanner;
oublic class WordSearchPuzzle {
  ArrayList<ArrayList<String>> alphabet;
  ArrayList<String> word;
   WordSearchPuzzle(String fileName) throws FileNotFoundException {
       this.alphabet = new ArrayList<ArrayList<String>>();
       this.word = new ArrayList<String>();
       File file = new File(fileName);
       Scanner scan = new Scanner(file);
       while (scan.hasNextLine()) {
           String next = scan.nextLine();
           if (next.isEmpty()) { // membaca kunci jawaban (setelah line kosong)
               while (scan.hasNextLine()) {
                  this.word.add(scan.next());
           } else { // membaca puzzle
               String[] a = next.split("\\s+");
               List <String> tmp2 = (List<String>) Arrays.asList(a);
               ArrayList<String> tmp = new ArrayList<String>(tmp2);
               this.alphabet.add(tmp);
```

```
ublic void fromLeftTopDiagonal() {
 (int for_row 0 = 0; for_row_0 < this.alphabet.get(0).size(); for_row_0 ++) { // kh
int kol = for_row_0;
boolean found = false;
int ct_row = i;
int ct_col = kol;
int ext_ength = 0;
while (ct_row <= this.alphabet.size() && ct_col <= this.alphabet.get(0).size()) {
    textlength ++;
    ct_row <= this.alphabet.ext_ength ++;
    ct_row <= this.alphabet.get(0).size()) {</pre>
                        ct_row ++;
ct_col ++;
                    }
int k = i;
while (k <= textLength - wordLength && !found) {
   int l = 0;
   while (l < wordLength && (this.alphabet.get(k + 1).get(kol + 1).equals(String.valueOf(this.word.get(j).charAt(1))))) {
        lattersComnared ++;
    }
}
</pre>
                        }
if (1 == wordLength) { // match pada baris k dan kolom kol
                             int row_printed = k;
int col_printed = kol;
                              row_printed ++;
col_printed ++;
                             System.out.println("Jumlah komparasi huruf: " + (lettersCompared));
System.out.println("\n");
                                 found =
                                 lettersCompared ++;
                                k ++;
kol ++;
                  boolean found = false;
                  int ct_row = i;
int ct_col = kol;
                  int textlength = 0;
while (ct_row <= this.alphabet.size() && ct_col <= this.alphabet.get(0).size()) {</pre>
                      textLength ++;
                      ct_row ++;
ct_col ++;
                  int k = i;
                   while (kol <= textLength - wordLength && !found) {</pre>
                      int 1 = 0;
while (1 < wordLength && (this.alphabet.get(k + 1).get(kol + 1).equals(String.valueOf(this.word.get(j).charAt(1))))) {
    lettersCompared ++;</pre>
                       }
if (1 == wordLength) { // match pada baris k dan kolom kol
                            int row_printed = k;
int col_printed = kol;
                            row_printed ++;
                                     } el
                                                col printed ++;
                                           System.out.print("- ");
                                  System.out.print("\n");
```

```
.
System.out.println("Jumlah komparasi huruf: " + (lettersCompared));
              System.out.println("\n");
found = true;
             else {
lettersCompared ++;
             k ++;
kol ++;
boolean = false;
int textLength = this.alphabet.size() - kol;
           int k = i;
while (kol >= wordLength - 1 && !found) {
             }
if (1 == wordLength) { // match pada baris k dan kolom kol
                int row_printed = k;
int col_printed = kol;
                 row printed ++;
                           col_printed
                 System.out.println("Jumlah komparasi huruf: " + (lettersCompared));
                 System.out.println("\n");
                 found = true;
                 lettersCompared ++;
                k ++;
kol --;
        int kol = this.alphabet.get(0).size() - 1;
         boolean found = false;
        int ct_row = i;
int ct_col = kol;
         int textLength = 0;
while (ct_row <= this.alphabet.size() && ct_col >= 0) {
    textLength ++;
           ct_row ++;
           ct col --;
        row_printed ++;
col_printed --;
```

```
System.out.print("- ");
                       } 
    System.out.println("Jumlah komparasi huruf: " + (lettersCompared)); 
    System.out.println("\n"); 
    found = true;
                  round = true;
} else {
    lettersCompared ++;
    k ++;
    kol --;
loop untuk tiap kata dalam kunci jawaban
int kol = for_last_row;
boolean found = false;
int ct_row = i;
int ct_rol = kol;
int textlength = 0;
while (ct_row >= 0 && ct_col <= this.alphabet.get(0).size()) {
    textlength ++;
    ct_row --;
    ct_col ++;
}</pre>
                       while (1 < wordLength && (this.alphabet.get(k - 1).get(kol + 1).equals(String.valueOf(this.word.get(j).charAt(1))))) {
                                    lettersCompared ++;
                             }
} else {
   System.out.print("- ");
                                         System.out.print("\n");
                                    System.out.println("Jumlah komparasi huruf: " + (lettersCompared));
System.out.println("\n");
                               } else {
   lettersCompared ++;
                                    k --;
kol ++;
          }
} else {
int kol = 0;
boolean found = false;
int ct_row = i;
int ct_rol = kol;
int textlength = 0.
                int textLength = 0;
while (ct_row >= 0 && ct_col <= this.alphabet.get(0).size()) {
   textLength ++;</pre>
                    ct_row --;
ct_col ++;
                int k = i;
while (kol <= ct_col - wordLength && !found) {</pre>
```

```
lettersCompared ++;
                     k --;
kol --;
           ise {
int kol = this.alphabet.get(0).size() - 1;
boolean found = false;
int ct_row = i;
int ct_col = kol;
           int textLength = 0;
while (ct_row >= 0 && ct_col >= 0) {
   textLength ++;
              ct_row --;
ct_col --;
           while (k >= wordLength - 1 && !found) {
   int 1 = 0;
   while (1 < wordLength && (this.alphabet.get(k - 1).get(kol - 1).equals(String.valueOf(this.word.get(j).charAt(1))))) {
    lettersCompared ++;</pre>
              System.out.println("Jumlah komparasi huruf: " + (lettersCompared));
                                System.out.println("\n");
                                found = true;
                           } else {
                                lettersCompared ++;
                                kol --;
                     }
          }
public void solvePuzzle() {
     System.out.println("Berikut adalah solusi dari puzzle yang disubmit: ");
     System.out.println("\n");
     fromLeftHorizontal();
     fromRightHorizontal();
     fromTopVertical();
     fromBottomVertical();
     fromLeftTopDiagonal();
     fromRightTopDiagonal();
     fromLeftBottomDiagonal();
     fromRightBottomDiagonal();
```

B. File App.java

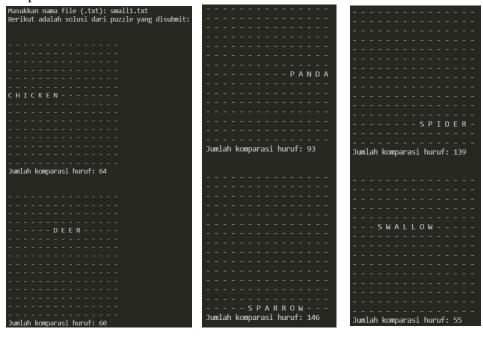
```
import java.util.Scanner;
import java.lang.System;

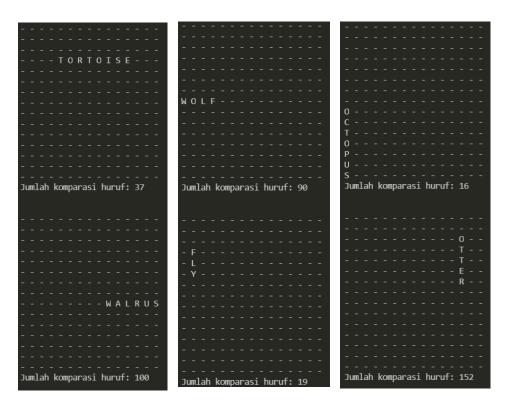
public class App {
    Run | Debug
    public static void main(String[] args) throws Exception {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Masukkan nama file (.txt): ");
        String filename = scanner.nextLine();
        WordSearchPuzzle x = new WordSearchPuzzle(filename);
        Long startTime = System.nanoTime();
        x.solvePuzzle();
        Long endTime = System.nanoTime();
        Long totalTime = endTime - startTime;
        System.out.println("Total waktu eksekusi program: " + totalTime + " ns");
        System.out.println("\n");
    }
}
```

III. Pengujian Program

A. Ukuran kecil 1

```
WOLFLSCZKEPAND
T O I Z M G H K I P L R R D A
O L R R A S M E T D E P S D D
P L V R T R T S S P I D E R O
UDOAEHDEYGTSLEU
SOCTESPARROWIES
BIRD
CAT
CHEETAH
CHICKEN
CHIMPANZEE
COW
DEER
FLY
HAMSTER
KANGAROO
LIZARD
OCTOPUS
OTTER
OWL
PANDA
PIG
rat
Seal
SNAIL
SPARROW
SPIDER
SQUID
SWALLOW
TORTOISE
WALRUS
WOLF
```



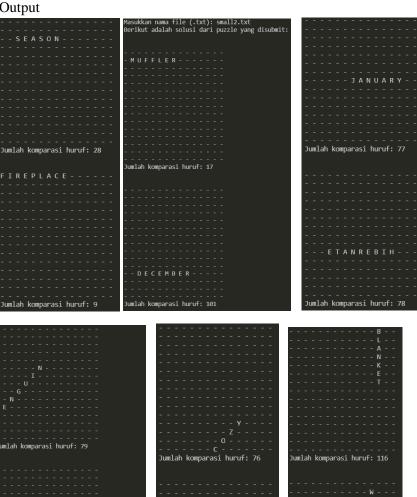


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| Jumlah komparasi huruf: 58 | | Jumlah kampanasi hunufu 10 |
| Julitan Koliibarast narati 30 | Jumlah komparasi huruf: 118 | Jumlah komparasi huruf: 10 |
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| Jumlah komparasi huruf: 8 | - 111 | |
| Julitan Koliparasi narat. 8 | Jumlah komparasi huruf: 62 | Jumlah komparasi huruf: 103 |
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| - L | | B |
| - L | Jumlah komparasi huruf: 107 | B |
| - L | Jumlah komparasi huruf: 107 | B |
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| - L | Jumlah komparasi huruf: 107 | B |
| - L | Jumlah komparasi huruf: 107 | B |
| - L | Jumlah komparasi huruf: 107 | B |
| - L | Jumlah komparasi huruf: 107 | B |
| - L | Jumlah komparasi huruf: 107 | B |
| - L | Jumlah komparasi huruf: 107 | Jumlah komparasi huruf: 102 |
| - L | Jumlah komparasi huruf: 107 | B |

B. Ukuran kecil 2

```
FIREPLACEVTVBAT
HMUFFLERKWSWLMH
LJSEASONEJHBANC
GMMDDETWSIWFNFF
номокѕкотоімкіи
MWOTEGNEQYVOEFV
SHKYFIGUIKAXTIP
TRFEUMJANUARYZZ
XKIGJZWMMAOCGWP
SSNETANREBIHJYH
KETXPFUHEIYKHVI
PPDECEMBERYYLDR
CPXRERLFYZQEOSV
WVTHGLUVOCZOGWV
ZOGCABVCNTAQYEH
BLANKET
HIBERNATE
MUFFLER
COZY
HOOD
PENGUIN
DECEMBER
ICY
SEASON
FIREPLACE
JANUARY
WHITE
```

otal waktu eksekusi program: 87153000 ns

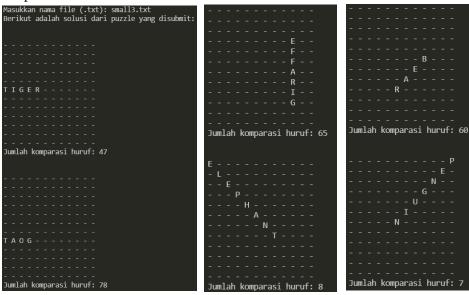


Jumlah komparasi huruf: 29

C. Ukuran kecil 3

1. Input

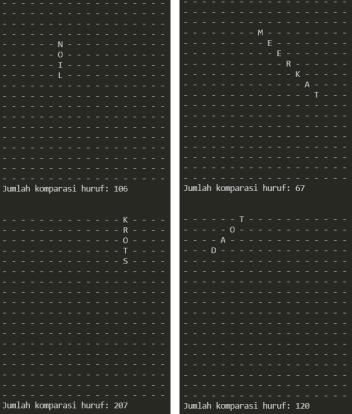
ENPTAJUFDIUP ULSUIDFAMKEY J T E E F X N W F N V I MDFPFAZAGEMO V B V H H G C U P F K L TIGERAIGBFUL MTHFINNEVAJN TAOGSKATHRVR SEMVSRZNZIAN YVGBDKPINGOG VLSLZYUARIVT BBVABJWILXLN BEAR ELEPHANT GIRAFFE GOAT LION PANDA PENGUIN TIGER



D. Ukuran medium 1

```
MOTRNBTEBNMRYKJHHP
ZOXJOOHUFHVEURBCNE
WPUGATXOYFKVROUYON
EPODPZATMNAEETQAGG
EAZKEUNGOEGRCSDFCU
TADNAPOMIIEUIHPNRI
LNNPFKIRTLFRVGDEVN
GORFWCLUPLLYKNCOAO
XWPZSTHOOJRAIABYQG
XZIAGJIXXOKHJKTEKD
DKOATXENWGVEIBADRN
NRTWJAENNBBLEYWJCQ
ELEPHANTAHYCKFWGDB
QYFWPHCYPFDJSBHFVE
RINQVJSXLQGFVPYXKL
ZSUMSIKBMGMBYGDPTA
D Q M U M S N G I G D P B N V O I S
J E B I N Q I J M S N I Q H I Y D V
ALLIGATOR
FROG
GIRAFFE
LION
PANDA
TIGER
ELEPHANT
TOAD
PENGUIN
GOAT
MEERKAT
MONKEY
STORK
```

| Output | |
|--|-----------------------------|
| Masukkan nama file (.txt): medium1.txt Berikut adalah solusi dari puzzle yang disubmit: | |
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| ELEPHANT | |
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| | Jumlah komparasi huruf: 90 |
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| Jumlah komparasi huruf: 148 | |
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| | limlah komparasi huruf: 220 |
| Jumlah komparasi huruf: 128 | Jumlah komparasi huruf: 220 |



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| Jumlah komparasi huruf: 124 | Jumlah kompanasi hunufu 165 |
| Janizari Komparasi Hurur. 124 | Jumlah komparasi huruf: 165 |
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| R | T |
| E | A |
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| Jumlah komparasi huruf: 160 | Jumlah komparasi huruf: 89 |
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| Jumlah komparasi huruf: 147 | |
| I G | 76400 ns |

E. Ukuran medium 2

1. Input

KRULNEFRRUEOQAQSEEHKC E P A K I T A K R E E M O F U L T O Q E X LNTOVOPGIRAFFEEGEOWDA DSCVXJNDMDERDPOLJRRCV AAIXFWTMFAPWHRSZOIKKP M K F Z Z S Q Y E O M A F U W K D Q W G O F Q F I B O M I V T N Y T F V Q P A Z C H IXMMHIOUETMKZOFEDVDEH S K K Y R K N Q O X Z K A T C E A S U L A UKYCDNKCBYQYDDYNHVUEM T S J O I A E J R H U T E U P P U D I Y M YMDWKHYWONUVHVCBRSDRL ALLIGATORMTVAQNDPLWWG XGBCCWHPAIZYDPAXXNGHP MAJTBBFNHANDTGYHLSLZW WUYNPTEGXFJDIWAJDZYNL RYQXCFNKGKPSYFIHNYMRT Q A S X B S A G B X R R E L L N A O B H I O A E M J X M Q P Y H D D Z C M E J Y M G HOLBLQGWSXFDKQYPRICQE XVLEYVZIPXUSFRYMGKUWR

ALLIGATOR

BEAR

ELEPHANT

FROG

GIRAFFE

LION

MEERKAT

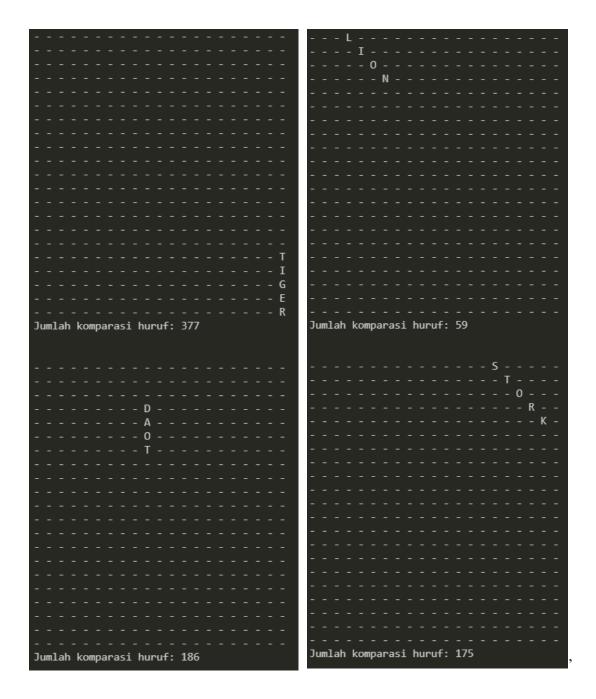
MONKEY

STORK

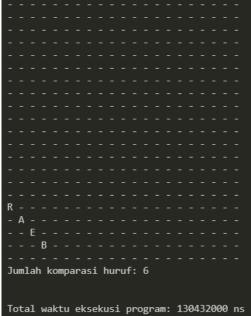
TIGER

TOAD

| 2. Output | |
|--|----------------------------|
| Masukkan nama file (.txt): medium2.txt | |
| Berikut adalah solusi dari puzzle yang disubmit: | TAKREEM |
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| ALLIGATOR | |
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| | Jumlah komparasi huruf: 31 |
| | Samzan Romparasz narari sz |
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| Jumlah komparasi huruf: 174 | |
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| Jumlah komparasi huruf: 174 | |
| Jumlah komparasi huruf: 174 | |
| Jumlah komparasi huruf: 174 | M |
| Jumlah komparasi huruf: 174 | M |
| Jumlah komparasi huruf: 174 | M |
| Jumlah komparasi huruf: 174 | |







F. Ukuran medium 3

1. Input

WIUSIHYDRCTEISVRSNYLHK RENQNEXTECROZCHONEUPMH A G X V H U S C G P Y B A P X T X N Z R A T J R M M O E G R Y G A O K U S C A M D I G E NSCNTLHNYVARXVBOKRRYJW YRWTWUVREBJXTDVDVLSOPI K Z A T S G B E Z S W C P E S E I W O N N I WFQREQNVXXSUECDFKVHLPP ZEFVMFOEEHPZCLTEVACNOC SOUGGXIULTIVXPMHOVTBRP SUFGDARRUOAFZPKVYZZXUO V T R K O R A M G A M I N G B E C C E S Z U WHAIMLVKXTOAMBSPRIESGT PANFOPOKBESRONSNRRHLYV WSFZFRGNJLOGGGQVPEBAXA H S D L H C U B O U B J E B Q M J F Q U H D NIUWKETCXMELQORGWJDGDR KGGDTSAJPXRHTFOMWMUHHX ENJYRVUEBOXJQXJSKZSEUB NZZBDIUFOPAJSATYWSQDEK YTPKDQGXQANHPULVERIZED KQVBEIHFHDSMRCFTODLXIU

ASSIGN

CONCAVE

DEPARTED

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FATTEST

GAMING

INVOLVE

LAUGHED

LUNA

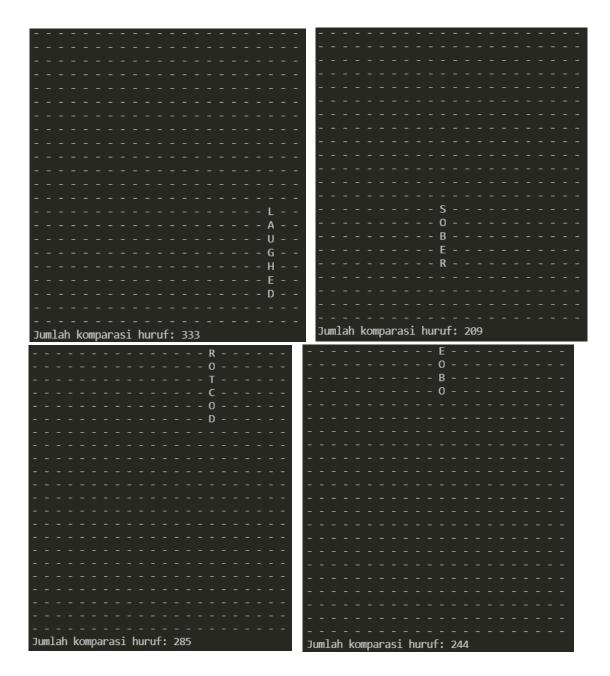
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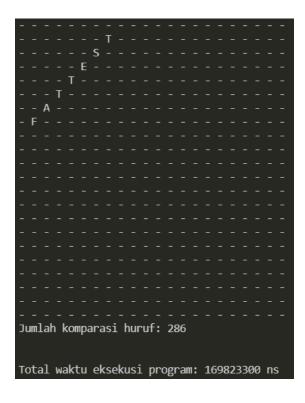
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SOBER

| Output | |
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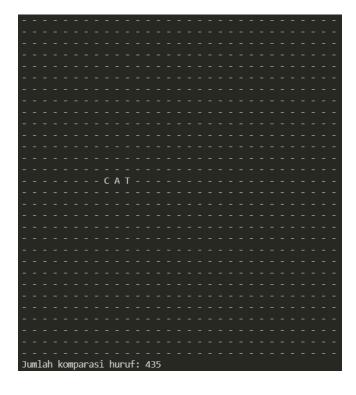


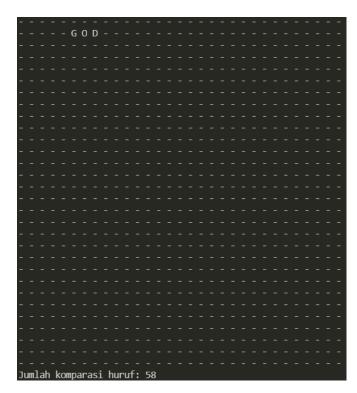
G. Ukuran besar 1

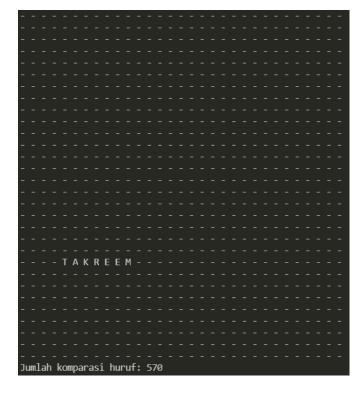
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Z Y A M S G O D Q J B F S L D A H D J B O E B U H Z E C E J K
H X I O M N S N L E M L J D U D Q A F R W R D J A O C Q G Z L
I P F N A G H A F L A G G C K U V O F C N P C S F G K Z H Z P
R U S K P V F D F F V P S E Z J M T G L O H D O T Y H D L A T
W N M E O P T B F D J M L R U W P B J S I X J A H D R S J D R
D S I Y L H F N J L A E T R R D B N U Z O O A Q B C Z X G P J
E I Y A V T T W U E P Q K E A N U B V F T Y N V U I P C J R K
H K H E N F P D B H E G C O M E I H M W P R O Q Z R E G Q A V
V E U Y D Z N A N L C Y N N A B U T F F W I S D C M O S O W
N I U G N E P N Y B X B Z T S K R L N R K W H K F X I D N Z
W R I Q H H T W T R N B R U W T I U Y C R C Y Z L R J W O B A
O R C I H T W C J W N W X J O Z O M G N V H W Y B W U Y W S
W B N J G Q L Z E U G N B C F K T R Z C Z Y R X L Z L L U M D
V J H E P X S K C A T T P D W J M V K Z B I G T D V B Y R B O
W T Q J K Q Z E S J Y V M Q B H S X H R T E T V C N Q U X B P
S B H L M V V B R Z E Y V X Y L C E G J I N U R D Q D E P M L
V V V I E S E W L X P C D Y C D J X K E G Y L A W K F K A Q H
Y X D W Y D I W U C U K O K I J A J O R E I W W F J H R W G
M M W K L V W S F I X P Y M E C O I H Y R K T S A R Z E F L F
E G C D Y I F D L Y K C J O V V C P S D C M E R G T T E S A T
F F P O T A K R E E M A L L I G A T O R B D I F Z B O J L M Y
P J Y C J M V J W G K F R M G H Y Y F I O G R E P P M L I X Z
I W L E V T A R R Z M H O S B E A R G I I Y T I C G P N O X A
A H L E A S Z P T X R U O M A R U T L R B M K S B G Z J S O R
G O W R F M H J D A G I P R R K O U W J F V V K C M D Q K D L
I P K B V D C P L Y O D V U Q T V P Q F T Z C D A V S M Q V E
I P F G W U Z Y J V I G S F E J W P S I O B X H R N N O C S C
R C I A I C N Y W S B X Z O J I I D Q W X G J C W C T D Q O X
K Z B T S K W B E M Y I S Q E P O E F X H G B N U E I H N B Z
ALLIGATOR
BEERKAT
MONKEY
PANDA
PENGUIN
STORK
TIGGER
TOAD
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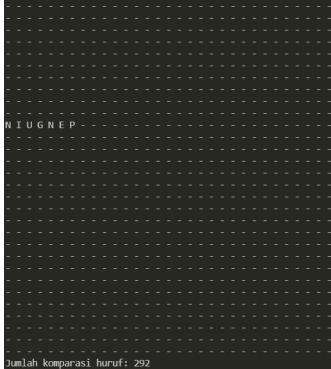
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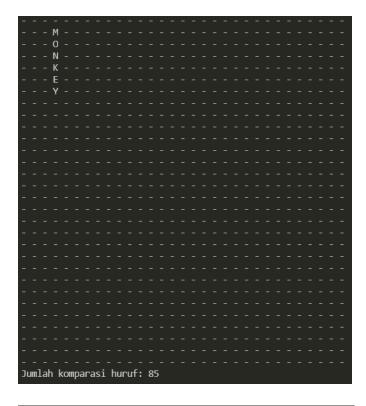


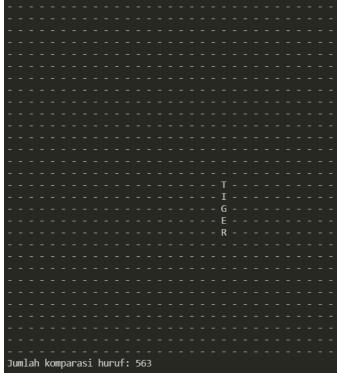


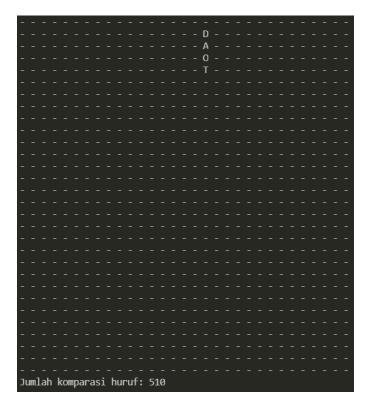


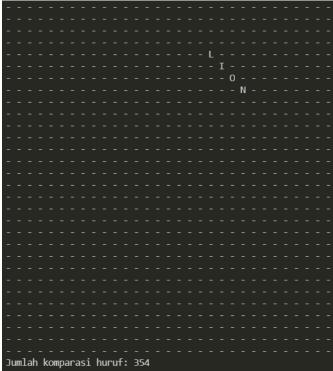


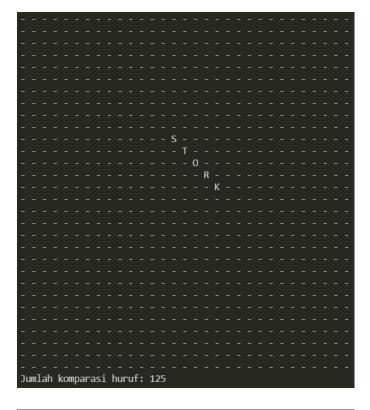


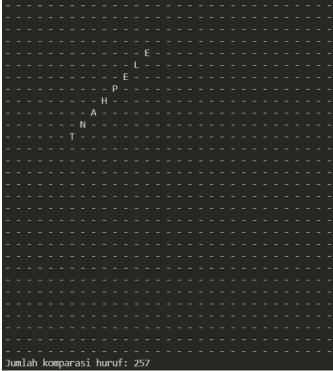


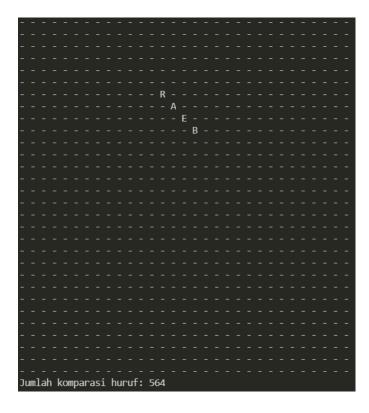


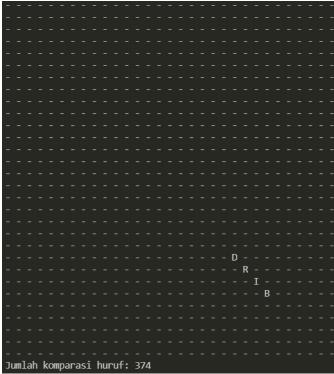


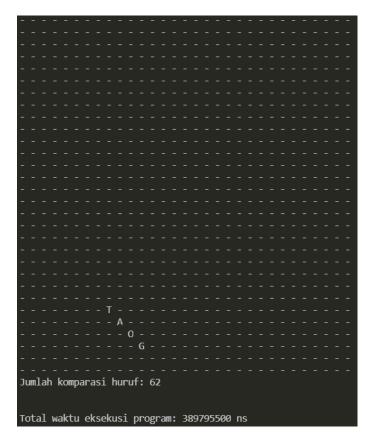






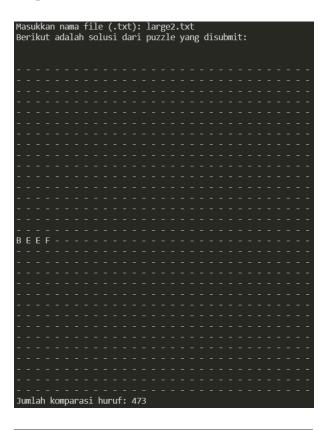


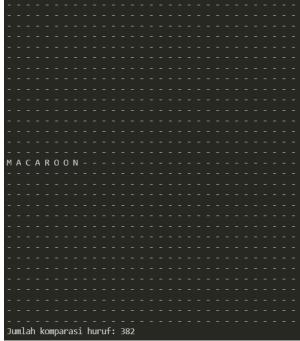


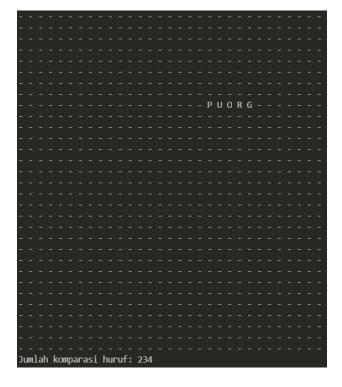


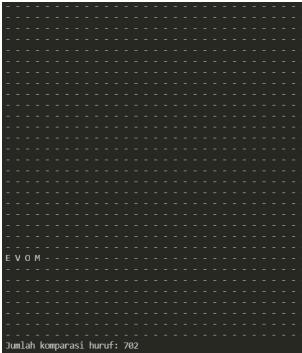
H. Ukuran besar 2

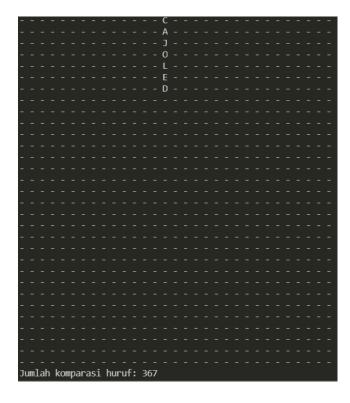
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Z S D I D X W J O A Q E N Z C U Q T J Z X D Y P I B J K Q Q V
M Q G Z U M Z H Y L K A X G A V A P E F I L S Y V L R C A L H
Z F G N J E I Q Z I R W A W J M D O T S L R Y C A P V A Y B L
K H K D Y N K B R M P D J P O U B S C A S F A M I B Z T W X E
 T B O B F T F M R J V A A L D D H I Y T S U H K K Z S X M O
WXLERYIESSOMWBEZACSXZEEZUUAEWCT
D J T V N B M W N H H K D A D R I M U S G N M L E E J K T U D
B Q L F Y O B D G B H O L L G D A F G K S R Z G E K Y O F Y Z
EJLGRAQWHAEISEUERRBPUORGCKNMLIH
H G Y A D V P Y T Y T F W J T B C O R X V Y J G O Y O S U Q E
S Y N J T H K X B T S J O R E A U O E Y G R C T P Z N M C T B
YDZCXIDSABSRBRSVIKYHBQEPYWSDSNM
A N Y V I L J A E H F A L R E N F A M J L Z B F H M U T V H A
I Z A X I I T X W J G M K M R H D R F U F F X S V X Y U B V Y
Z J Z C V Y C H Y B X I B M F O A E Q P A I X J I C U G L C O
MACAROONEPLPFLGAXNITTDOTOMJMKWN
BEEFDYAXMWTIOQIPBLDLVCBANFTNYWN
O A I F V M L Q S A X Z L D X L G L Z Q P T C P D N I T Z C A
V M F X T A O C Y R C A S Y W G H J G U S M E L H W H T R O I
V R P O Y F R W K F T H D V V Z W N N H B M I R G X X P H O S
O R M O C F K C D N Q H Q X O Z B R R L Y O T K U H L E V T E
CGWATWAMREYSIRUGIXWBDIWNXSHRAFJ
RVARNPZJOEXVYQBFZUWLXBQIEZLYPVR
EVOMYALRUOGIXUEDTBKHHKAENHXORCC
E D D S Y J G H H G X F T U D T L F X U C H U M J W L Z T Y M
S E I F X C K E O I T W I E T G S Z N V T Q N V R H S N T A H
G M E V K X K F M P P X R T B D W W K R C O P W G E O T I J W
O O F V P W L S Z E Z Y U H R H U W X H G S E G K H P X X F R
J D P Z R D B S D N N X P O E D B E B Z Z W U O M R Z D Y C W
D X X X X T P F E X N T V K W P K U Y A W O E Q H Q X X X O L
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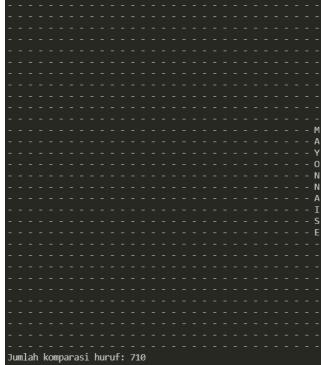


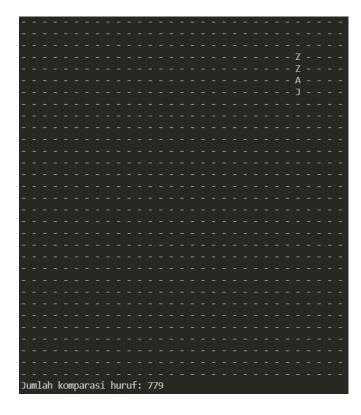


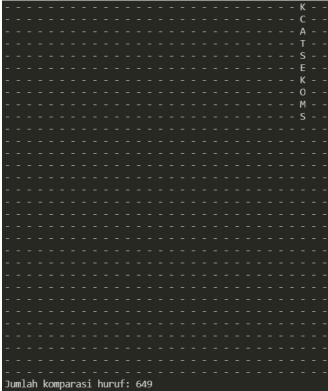


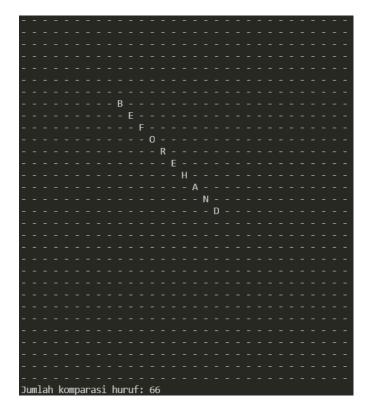


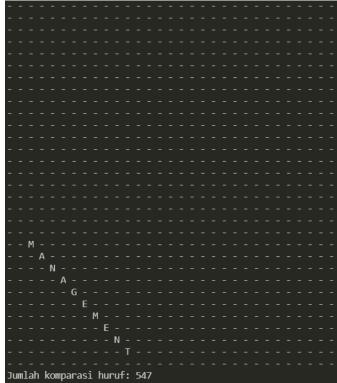


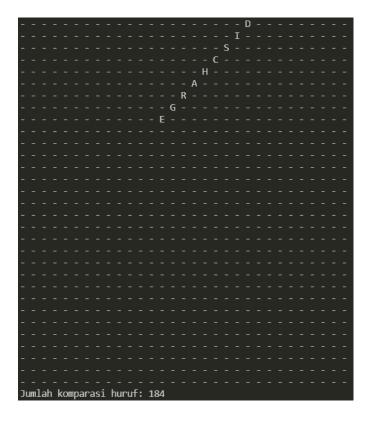


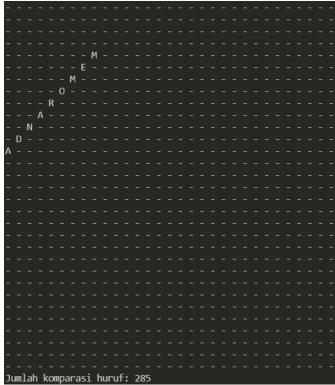


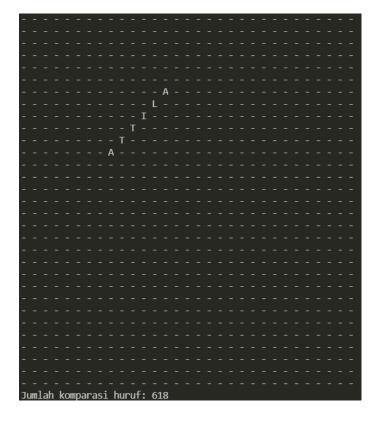


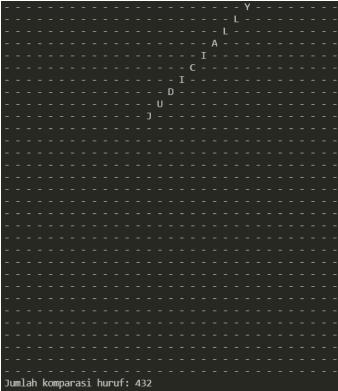


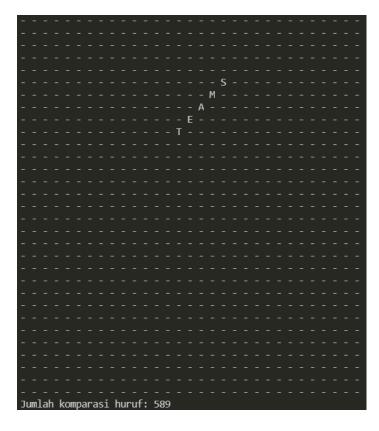


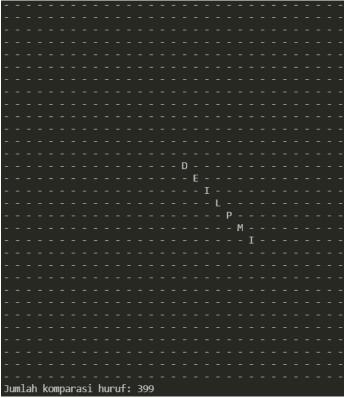


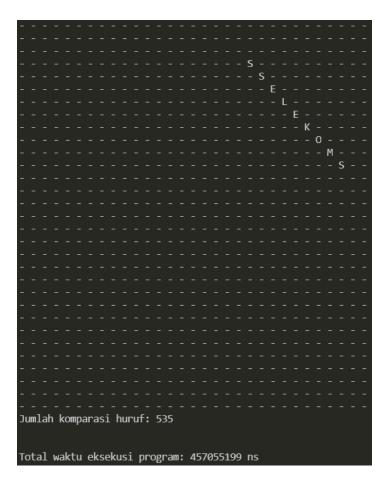












| Poin | Ya | Tidak |
|--|----|-------|
| Program berhasil dikompilasi tanpa kesalahan (no syntax error) | V | |
| 2. Program berhasil running | V | |
| Program dapat membaca file masukan dan menuliskan luaran | V | |
| 4. Program berhasil menemukan semua kata di dalam puzzle. | V | |

IV. Alamat Repository Program

Github: https://github.com/daffarg/Tucil1-Stima