Laporan Tugas Kecil 1 Strategi Algoritma

Checklist

Link Drive:

https://drive.google.com/drive/u/2/folders/1DCjP508YQUmhp5EuPGUFT7IW8cK0c8Mn Link Github: https://github.com/rifqi2320/word-search-solver

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Program berhasil dikompilasi tanpa kesalahan (no syntax error)	~	
2. Program berhasil <i>running</i>	~	
3. Program dapat membaca file masukan dan menuliskan luaran	~	
Program berhasil menemukan semua kata di dalam puzzle	✓	

Algoritma Brute Force

Dalam penyusunan algoritma program ini menggunakan pendekatan brute force dimana berarti dalam pembangunan algoritma tidak dipedulikan strategi untuk melakukan yang lebih efisien atau lebih cepat, dengan niatan menghasilkan hasil yang lebih *straightforward* dan lebih cepat jadi. Tahapan algoritma program yang disusun adalah,

- 1. Melakukan iterasi setiap sel dalam matriks huruf
- 2. Melakukan iterasi setiap arah yang dapat dituju (terdapat 8 arah, 2 vertikal, 2 horizontal dan 4 diagonal).
- Melakukan penambahan indeks sesuai arah jika huruf sesuai dengan urutan karakter dalam kata
- 4. Lewatkan pengecekan ke arah tersebut jika indeks melewati batas
- 5. Lewatkan pengecekan ke arah tersebut jika huruf tidak sesuai
- 6. Jika pertambahan indeks berjumlah sesuai dengan panjang teks, buat matriks boolean baru berisikan false selain pada posisi kata yang telah ditemukan
- 7. Untuk pencetakkan, iterasi setiap sel pada matriks huruf dan tulis "-" jika dalam matriks boolean berisi false dan huruf pada matriks huruf jika dalam matriks boolean berisi true

Source Code

```
import java.io.File;
        public SearchResult(String word, double time, boolean found, int count, boolean[][] resmat)
              for (int i = 0; i < mat.size(); i++) {</pre>
                        System.out.print(mat.get(i).get(j));
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} else {
            boolean[][] resmat = new boolean[mat.size()][mat.get(0).size()];
            matrixloop:
                                if (mat.get(n + dir[1] * counter).get(m + dir[0] *
counter) .equals (Character.toString (word.charAt (counter)))) {
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if (counter == this.word.length()) {
                          for (int i = 0; i < this.word.length(); i++){}
                            resmat[n + dir[1] * i][m+dir[0] * i] = true;
public String toString() {
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```
mat.add(new ArrayList<String>());
File f = new File(args[0]);
    Scanner in = new Scanner(f);
    while (in.hasNextLine()) {
        String[] line = in.nextLine().split(" ");
            if (word.equals("")) {
                wordFlag = true;
                   mat.get(y).add(word);
           mat.add(new ArrayList<String>());
for (int i = 0; i < words.size(); i++) {</pre>
```

Hasil Implementasi

Test case 1 (Large)

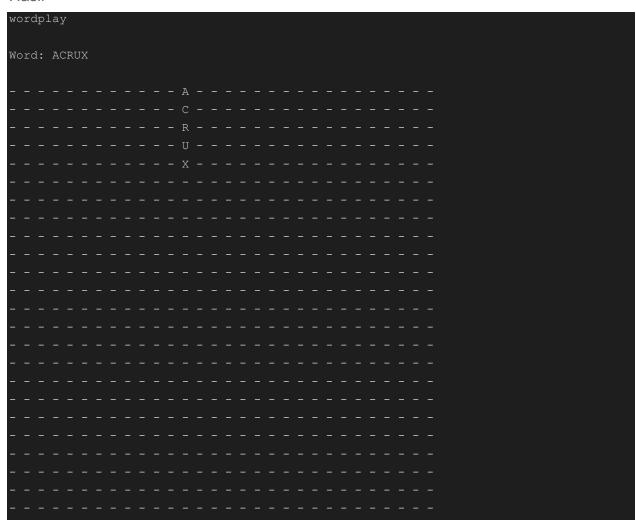
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Rifqi Naufal Abdjul 13520062

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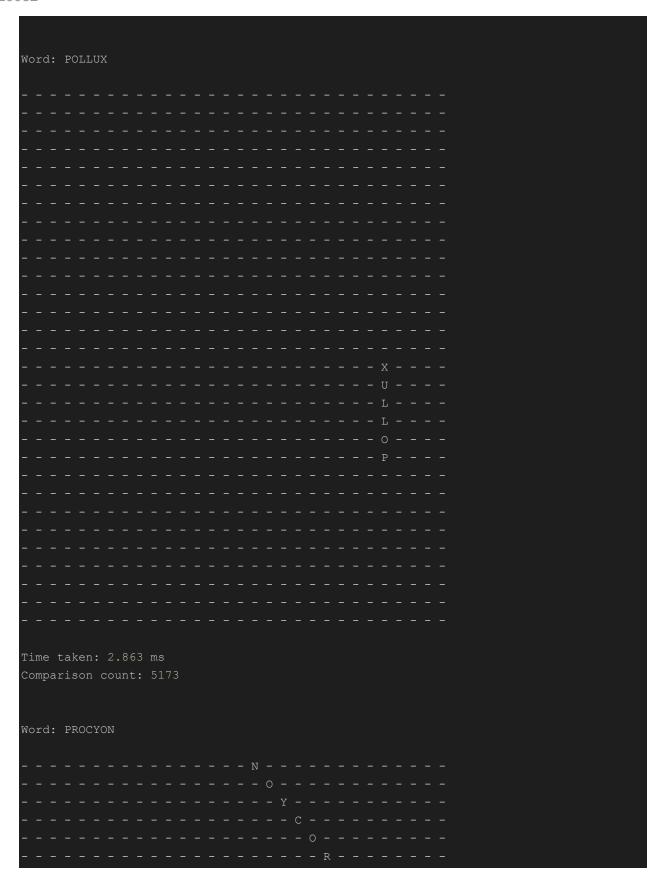
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Test case 2 (Large)

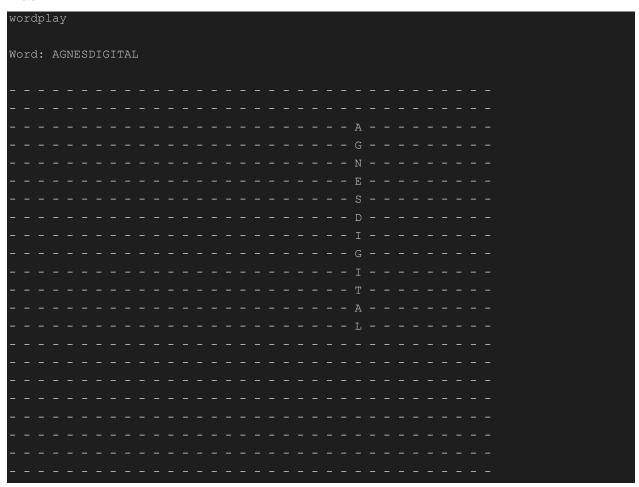
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Rifqi Naufal Abdjul 13520062

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Time taken: 0.113 ms
Comparison count: 2473
Word: KINGHALO
WOLG. KINGHADO
Time taken: 0.401 ms

Comparison	count:	1895						

Test case 3 (Medium)

Sampel

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D N U U M O L D O V A C K P Y I I E N Z A U
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A G D N A L N I F A U Q L Y S C P A K Z O N
ALBANIA
GERMANY
NORWAY
GREECE
POLAND
PORTUGAL
AUSTRIA
ICELAND
ROMANIA
IRELAND
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BELARUS	
ITALY	
SANMARINO	
BELGIUM	
KAZAKHSTAN	
SERBIA	
BOSNIAHERZEGOVINA	

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Word: ALBANIA
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Time taken: 3.334 ms
Comparison count: 2273
Word: GERMANY

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Time taken: 0.664 ms	
Comparison count: 3321	
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Word: NORWAY	
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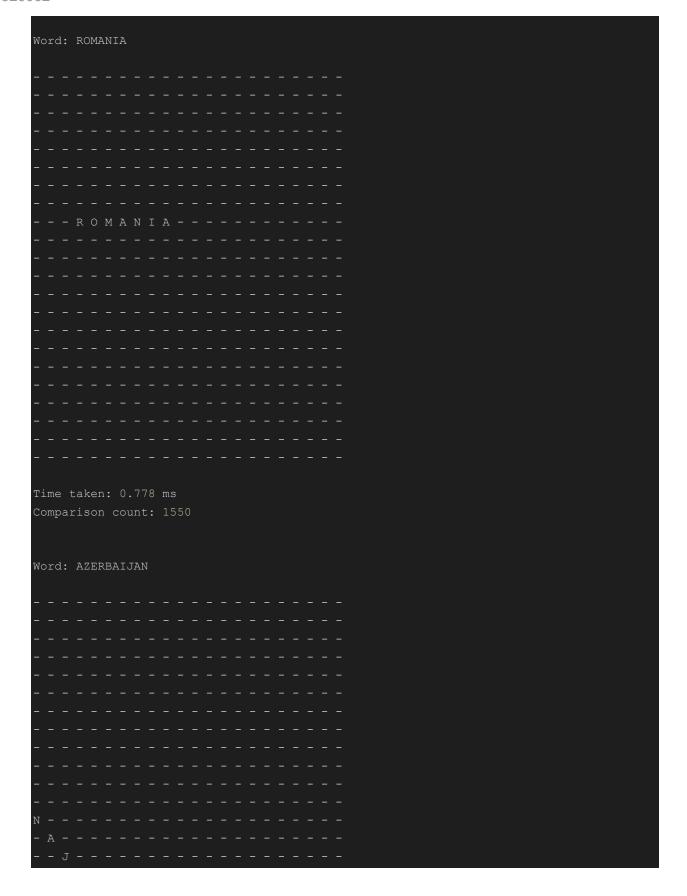
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Word: ANDORRA
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Time taken: 3.824 ms
Comparison count: 4056
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Comparison count: 288	
Word: POLAND	
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Word: ARMENIA	

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Word: PORTUGAL	
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Time taken: 0.692 ms	
Comparison count: 2496	
Word: AUSTRIA	
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Time taken: 1.684 ms
Comparison count: 1591
Word: ICELAND
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Comparison count: 2732



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Comparison count: 2277	
Word: RUSSIA	

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Comparison count: 651	
Word: BELARUS	
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Comparison count: 383	
Word: ITALY	
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Time taken: 0.409 ms
Comparison count: 334
Word: BOSNIAHERZEGOVINA
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Time taken: 0.343 ms
Comparison count: 1670

Test case 4 (Medium)

Sampel

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Word: OLYMPIA	
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Time taken: 0.972 ms
Comparison count: 1495
Word: RALEIGH
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Time taken: 0.068 ms
Comparison count: 399
Word: BISMARCK

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Time taken: 1.531 ms	_																										
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Test case 5 (Medium)

Sampel

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V G C B X D X I R R E G U L A R J Y J I R R
X J L R G M N U U T M V O H J B X T J H F E
IBWGKDWPUSOLIDFLTLQUEC
TINERTNESSZESFWBTDADCO
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SMHINVNABVONCNYSMBLXIE
OJWRDNCNHOUEJWTMJILPAR
J Q O M V E A I C B F R G K S L D R O W R U
F Y E N U J I F D P A E Y Y N K A C G X B P
PRESCRIBEDDHARANXSQFKZ
CKNIIQGHNXMDIULRLNPKXD
RURUGUAYDGCACJURVIMLQB
K Q C V J W N Z K S Q J V R T W B I J G V I
UHOEDIKHEOGIFEARSRQBIB
YIHEREWOHSJHYPPGGQTPHL
SISASQDESUMASJSNWPMARI
O J O T T O T A L L Y A A O T H U V S H O C
K C K C R E R R I X T O G G N I K C A S C A
T S E N O H S I D G T Z M F U P J M Z J Y L
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Rifqi Naufal Abdjul 13520062

ADHERENCE		
AMUSE		
BIBLICAL		
BRAID		
BRINY		
DISHONEST		
FINAL		
INERTNESS		
INSCRIBED		
IRREGULAR		
JUNE		
PERJURY		
PRESCRIBED		
RECOVER		
SACKING		
SHOWER		
SOLID		
SPATULA		
TOTALLY		
URUGUAY		

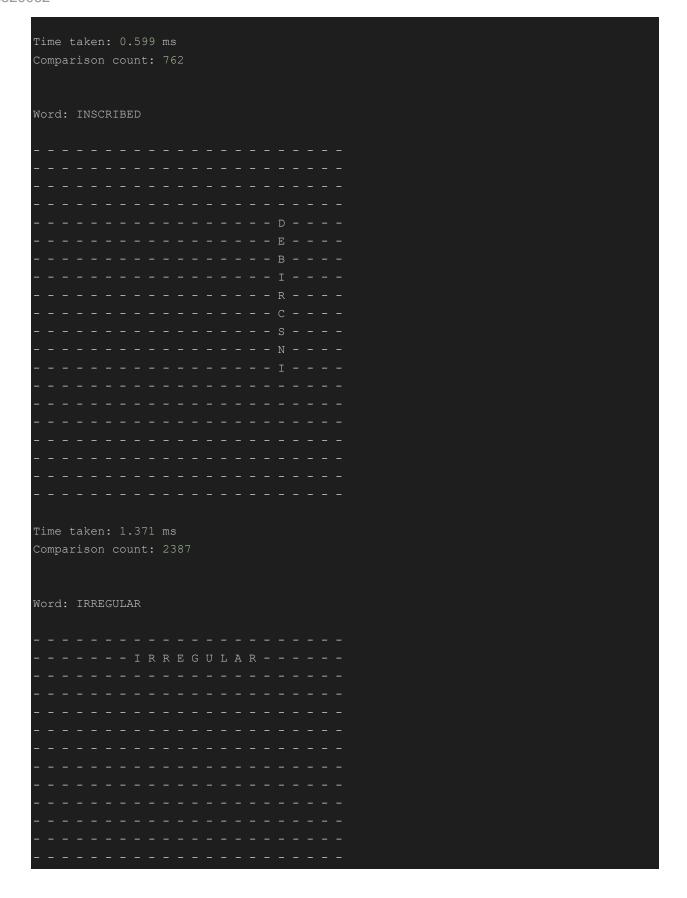
wordplay
Word: ADHERENCE
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Time taken: 0.933 ms
Comparison count: 2304
Word: AMUSE
WOLG. 12100E
E S U M A
Time taken: 0.627 ms
Comparison count: 3026
Word: BIBLICAL
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Time taken: 1.498 ms
Comparison count: 2382
Word: BRAID
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Time taken: 0.941 ms
Comparison count: 1834
Word: BRINY
mora. Bitili
BRINY

Time taken: 0.255 ms	
Comparison count: 150	
Word: DISHONEST	
T S E N O H S I D	
Time taken: 1.575 ms	
Comparison count: 3579	
Word: FINAL	

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Time taken: 1.620 ms	
Comparison count: 1730	
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Comparison count: 1730 Word: INERTNESS	
Word: INERTNESS	



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Time taken: 0.514 ms
Comparison count: 252
Word: JUNE
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Time taken: 0.655 ms
Comparison count: 1710
Word: PERJURY

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Time taken: 1.375 ms	
Comparison count: 2809	
Word: PRESCRIBED	
P R E S C R I B E D	
Time taken: 0.812 ms	
Comparison count: 1811	
Word: RECOVER	

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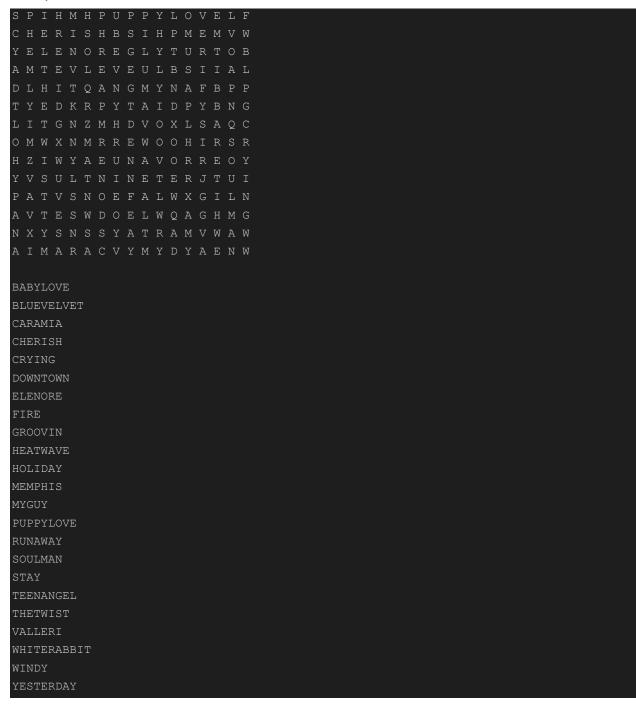
Time taken: 2.180 ms	
Comparison count: 3494	
Word: SHOWER	
REWOHS	
Time taken: 0.763 ms	
Comparison count: 2815	
Word: SOLID	

Time taken: 0.117 ms	
Comparison count: 609	
Word: SPATULA	
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Time taken: 1.197 ms	
Comparison count: 3077	
Word: TOTALLY	
WOLG. FOIRBLE	

T O T A L L Y	
Time taken: 1.029 ms	
Comparison count: 3121	
Word: URUGUAY	
- II D II C II A V	
- U R U G U A Y	
Time taken: 1.280 ms	
Comparison count: 2215	

Test case 6 (Small)

Sampel



wordp	lay			
Word:	BABYLOVE			

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Time taken: 3.759 ms	
Comparison count: 427	
Word: BLUEVELVET	
WOLG. BLOEVELVET	
TEVLEVEULB	
Time taken: 0.614 ms	
Comparison count: 532	
Word: CARAMIA	

A I M A R A C	
Time taken: 1.881 ms	
Comparison count: 1843	
Word: CHERISH	
word. Cherton	
C H E R I S H	
Time taken: 0.059 ms	
Comparison count: 147	
Word: CRYING	
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Time taken: 1.191 ms		
Comparison count: 955		
Word: DOWNTOWN		
Word not found		
Time taken: 1.768 ms		
Comparison count: 1951		
Comparison Count: 1931		
Word: ELENORE		
- E L E N O R E		
Time taken: 0.627 ms		
Comparison count: 314		
Word: FIRE		
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Time taken: 0.995 ms	
Comparison count: 664	
Comparison Count. 004	
Hand, CDOONIN	
Word: GROOVIN	
Word not found	
Time taken: 1.391 ms	
Comparison count: 1958	
Word: HEATWAVE	
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Time taken: 1.035 ms	
Comparison count: 930	
Word: HOLIDAY	
Word not found	
Time taken: 2.085 ms	

Comparison count: 1980	
Word: MEMPHIS	
Time taken: 0.861 ms	
Comparison count: 282	
Word: MYGUY	
Y	
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Y	
M	
Time taken: 0.860 ms	
Comparison count: 913	
Word: PUPPYLOVE	

PUPPYLOVE	
Time taken: 0.299 ms	
Comparison count: 66	
1	
Word: RUNAWAY	
WOIG. KUNAWAI	
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Time taken: 0.317 ms	
Comparison count: 1042	
Comparison Count. 1042	
Word: SOULMAN	

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Time taken: 0.959 ms	
Comparison count: 1115	
Word: STAY	
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Time taken: 1.432 ms	
Comparison count: 1740	
Word: TEENANGEL	
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Time taken: 1.498 ms
Comparison count: 1828
Word: THETWIST
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Time taken: 0.303 ms
Comparison count: 449
Word: VALLERI
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Test case 7 (Small)

Sampel

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IANBAALCYEEAIILINS
N P Y N L J Y K Q U R O N K Q E N A
GIUSJOZFISCHLGCIEF
JEANSKKOKOMIAYAKAZ
AMBER
AYAKA
BARBARA
BEIDOU
DIONA
EULA
FISCHL
GANYU
HUTAO
JEAN
KEQING
KLEE
KOKOMI
LISA
NINGGUANG
NOELLE
QIQI
BAAL
SAYU
ROSARIA
SHENHE
SUCROSE
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YANFEI			
YOIMIYA			
YUNJIN			

wordplay
wordpray
Word: AMBER
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Time taken: 4.280 ms
Comparison count: 848
Word: AYAKA
AYAKA-
Time taken: 3.504 ms
Time taken: 3.504 ms Comparison count: 1843
Compartson Counc. 1045
Word: BARBARA

BARBARA	
Time taken: 0.118 ms	
Comparison count: 43	
Word: BEIDOU	
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Time taken: 0.899 ms	
Comparison count: 184	
Word: DIONA	
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lime taken: 0.274 ms	
Comparison count: 849	
omparison counc. 049	
Jord: EULA	
lime taken: 1.024 ms	
Comparison count: 707	
Jord: FISCHL	
lime taken: 1.057 ms	
Comparison count: 1519	
Omparison count. 1319	
Jord: GANYU	

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Time taken: 0.293 ms	
Comparison count: 912	
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Word: HUTAO	
Time taken: 0.117 ms	
Comparison count: 385	
Word: JEAN	

J E A N
Time taken: 0.886 ms
Comparison count: 1623
Word: KEQING
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Time taken: 0.603 ms
Comparison count: 747
Word: KLEE
E-
Time taken: 1.810 ms
Comparison count: 1153
Comparison Count. 1105

Word: KOKOMI	
K O K O M I	
Time taken: 2.657 ms	
Comparison count: 1706	
Word: LISA	
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Time taken: 0.789 ms	
Comparison count: 478	
Word: NINGGUANG	
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Time taken: 0.785 ms
Comparison count: 345
Word: NOELLE
NOELLE-
Time taken: 0.039 ms
Comparison count: 98
Mand. OTOT
Word: QIQI
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Time taken: 2.314 ms
Comparison count: 1147

Word: BAAL
BAAL
Time taken: 3.598 ms
Comparison count: 1238
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Word: SAYU
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Time taken: 3.658 ms
Comparison count: 974
Word: ROSARIA
ROSARIA

Time taken: 2.230 ms	
Comparison count: 223	
Word: SHENHE	
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Time taken: 0.634 ms	
Comparison count: 462	
Word: SUCROSE	
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Time taken: 0.185 ms	
Comparison count: 353	

Word: XIANGLING	
XIANGLING-	
Time taken: 0.274 ms	
Comparison count: 509	
Word: YANFEI	
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Time taken: 6.232 ms	
Comparison count: 522	
Word: YOIMIYA	
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Test case 8 (Small)

Sampel

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R Z H W I A J W V Z Z V U C S
B E S U X B C C C Z R X X P P
R G D E N B T N E E A G C F K
E Y G I K T L C K B O T P M B
M W V R R K E E K R O T P M B
M G E X B T E R C E M O F X R
A Y N M Q S A M A T B M X W O
S K P T D O I B B S A J U X O
T I X O L X C V E A Y O B G
E V O W F R T B L M X W M T M
R L B Q H J A M T T E N A B O
B W I I J X M K S S X C T G T
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Ŧ	BAN	E													
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Ι	BRI	ST:	LEE	BAC	CK										
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wordplay
Word: AXE
Time taken: 2.642 ms
Comparison count: 54
Word: BANE
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Time taken: 1.706 ms		
Comparison count: 1417		
Word: BATRIDER		
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Time taken: 1.312 ms		
Comparison count: 967		
comparison counte. 507		
Word: BEASTMASTER		
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Time taken: 2.977 ms
Comparison count: 1895
Word: BLOODSEEKER
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Time taken: 0.948 ms
Comparison count: 1438
Word: BOUNTY
BOUNTY

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Time taken: 0.992 ms		
Comparison count: 464		
Word: HUNTER		
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R		
Time taken: 0.039 ms		
Comparison count: 24		
Word: BREWMASTER		
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Time taken: 0.109 ms	
Comparison count: 130	
Word: BRISTLEBACK	
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Time taken: 2.448 ms	
Comparison count: 1878	
Word: BROODMOTHER	
WOIG. BROODHOINER	
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Rifqi Naufal Abdjul 13520062

Time taken: 1.468 ms Comparison count: 634