

Transform and Conquer the Best Problem Report

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Execution Environment

OS

```
Distributor ID: Ubuntu
Description:   Ubuntu 22.04.3 LTS
Release:      22.04
Codename:     jammy
```

Python Runtime

Python 3.11.6

External Libraries

There is no external libraries used in the following source code.

Pipfile:

```
[[source]]
[[source]]
url = "https://pypi.org/simple"
verify_ssl = true
name = "pypi"

[packages]

[dev-packages]
cloudinary = "*"

[requires]
python_version = "3.11"
python_full_version = "3.11.6"
```

Source Code

```
import sys

sys.setrecursionlimit(100000)
input = sys.stdin.readline
```

```

def get_decoded_msg(msg):
    """
    >>> get_decoded_msg("25114")
    [['BEAAD', 'BEAN', 'BEKD', 'YAAD', 'YAN', 'YKD']]
    >>> get_decoded_msg("11271518920813")
    [['BHE', 'VE']]
    """
    # 알파벳을 숫자로 매핑
    alpha_to_num_dict = {chr(i + 64): str(i) for i in range(1, 27)}
    # 숫자를 알파벳으로 매핑
    num_to_alpha_dict = {v: k for k, v in alpha_to_num_dict.items()}

    def get_word_interpretation_cases(s):
        if not s:
            return [""]
        if s in memo:
            return memo[s]

        interpretation_cases = []
        for i in range(1, len(s) + 1):
            sliced_word = s[:i]
            if sliced_word in num_to_alpha_dict:
                cur_char = num_to_alpha_dict[sliced_word]
                for unsliced_word in get_word_interpretation_cases(s[i:]):
                    interpretation_cases.append(cur_char + unsliced_word)

        memo[s] = interpretation_cases
        return interpretation_cases

    # 메모이제이션을 위한 딕셔너리
    memo = {}

    # 메시지를 단어별로 분리
    words = msg.split()
    result = []

    # 각 단어에 대해 해독
    for word in words:
        if "." in word:
            word = word.replace(".", "")
            interpretation_cases_list_for_word =
get_word_interpretation_cases(word)
            interpretation_cases_list_for_word = [
                case + "." for case in interpretation_cases_list_for_word
            ]
        else:
            interpretation_cases_list_for_word =
get_word_interpretation_cases(word)
            result.append(interpretation_cases_list_for_word)
    return result

if __name__ == "__main__":

```

```

interpretation_cases = 1
interpretation_cases_for_words = get_decoded_msg(input().rstrip())
for interpretation_cases_for_word in interpretation_cases_for_words:
    interpretation_cases *= len(interpretation_cases_for_word)
print(interpretation_cases)
for interpretation_cases_for_word in interpretation_cases_for_words:
    print(", ".join(interpretation_cases_for_word))

"""
THE ALGORITHM LECTURE THIS SEMESTER WAS MEANINGFUL AND INTERESTING. THANK
YOU FOR SOLVING THE RANDOM TEAM PROBLEM.
"""

```

Execution Result

How to run `main.py`:

```

pipenv run python3 main.py < input.txt > output.txt

```

or

```

python3 main.py < input.txt > output.txt

```

- 실행이 안되면 <https://github.com/gyunseo/oakgorithms.git>을 `git clone` 하여, root directory에서 `pipenv install`을 하시고 `dynamic-programming/the-best-problem/`로 이동하셔서 `pipenv run python3 main.py < input.txt > output.txt`를 하시면 됩니다.

Input

`input.txt`:

```

2085 11271518920813 12532021185 208919 1951351920518 23119 135114914762112
1144 91420518519209147. 20811411 251521 61518 191512229147 2085 1811441513
205113 161815212513.

```

Output

`output.txt`:

```

8806025134080000
THE
AABGAEAHITHAC, AABGAEAHITHM, AABGAERITHAC, AABGAERITHM, AABGOAHITHAC,
AABGOAHITHM, AABGORITHAC, AABGORITHM, ALGAEAHITHAC, ALGAEAHITHM,

```

ALGAERITHAC, ALGAERITHM, ALGOAHITHAC, ALGOAHITHM, ALGORITHAC, ALGORITHM,
KBGAEAHITHAC, KBGAEAHITHM, KBGAERITHAC, KBGAERITHM, KBGOAHITHAC,
KBGOAHITHM, KBGORITHAC, KBGORITHM
ABECTBAAHE, ABECTBARE, ABECTBKHE, ABECTUAHE, ABECTURE, AYCTBAAHE, AYCTBARE,
AYCTBKHE, AYCTUAHE, AYCTURE, LECTBAAHE, LECTBARE, LECTBKHE, LECTUAHE,
LECTURE
THIAI, THIS
AIEACEAITEAH, AIEACEAITER, AIEACESTEAH, AIEACESTER, AIEMEAITEAH,
AIEMEAITER, AIEMESTEAH, AIEMESTER, SEACEAITEAH, SEACEAITER, SEACESTEAH,
SEACESTER, SEMEAITEAH, SEMEAITER, SEMESTEAH, SEMESTER
BCAAI, BCAS, BCKI, WAAI, WAS, WKI
ACEAADIADGFBAAB, ACEAADIADGFBAL, ACEAADIADGFBKB, ACEAADIADGFUAB,
ACEAADIADGFUL, ACEAADINGFBAAB, ACEAADINGFBAL, ACEAADINGFBKB, ACEAADINGFUAB,
ACEAADINGFUL, ACEANIADGFBAAB, ACEANIADGFBAL, ACEANIADGFBKB, ACEANIADGFUAB,
ACEANIADGFUL, ACEANINGFBAAB, ACEANINGFBAL, ACEANINGFBKB, ACEANINGFUAB,
ACEANINGFUL, ACEKDIADGFBAAB, ACEKDIADGFBAL, ACEKDIADGFBKB, ACEKDIADGFUAB,
ACEKDIADGFUL, ACEKDINGFBAAB, ACEKDINGFBAL, ACEKDINGFBKB, ACEKDINGFUAB,
ACEKDINGFUL, MEAADIADGFBAAB, MEAADIADGFBAL, MEAADIADGFBKB, MEAADIADGFUAB,
MEAADIADGFUL, MEAADINGFBAAB, MEAADINGFBAL, MEAADINGFBKB, MEAADINGFUAB,
MEAADINGFUL, MEANIADGFBAAB, MEANIADGFBAL, MEANIADGFBKB, MEANIADGFUAB,
MEANIADGFUL, MEANINGFBAAB, MEANINGFBAL, MEANINGFBKB, MEANINGFUAB,
MEANINGFUL, MEKDIADGFBAAB, MEKDIADGFBAL, MEKDIADGFBKB, MEKDIADGFUAB,
MEKDIADGFUL, MEKDINGFBAAB, MEKDINGFBAL, MEKDINGFBKB, MEKDINGFUAB,
MEKDINGFUL
AADD, AND, KDD
IADTEAHEAITIADG., IADTEAHEAITING., IADTEAHESTIADG., IADTEAHESTING.,
IADTEREAITIADG., IADTEREAITING., IADTERESTIADG., IADTERESTING.,
INTEAHEAITIADG., INTEAHEAITING., INTEAHESTIADG., INTEAHESTING.,
INTEREAITIADG., INTEREAITING., INTERESTIADG., INTERESTING.
THAADAA, THAADK, THANAA, THANK, THKDAA, THKDK
BEAEBAB, BEAEU, BEOBA, BEOU, YAEBA, YAEU, YOBA, YOU
FAEAH, FAER, FOAH, FOR
AIAEABBBIADG, AIAEABBBING, AIAEABVIADG, AIAEABVING, AIAEAVBIADG,
AIAEAVBING, AIAELBBIADG, AIAELBBING, AIAELVIADG, AIAELVING, AIOABBBIADG,
AIOABBBING, AIOABVIADG, AIOABVING, AIOAVBIADG, AIOAVBING, AIOLBBIADG,
AIOLBBING, AIOLVIADG, AIOLVING, SAEABBBIADG, SAEABBBING, SAEABVIADG,
SAEABVING, SAEAVBIADG, SAEAVBING, SAELBBIADG, SAELBBING, SAELVIADG,
SAELVING, SOABBBIADG, SOABBBING, SOABVIADG, SOABVING, SOAVBIADG, SOAVBING,
SOLBBIADG, SOLBBING, SOLVIADG, SOLVING
THE
AHAADDAEAC, AHAADDAEM, AHAADDOAC, AHAADDOM, AHANDAEAC, AHANDAEM, AHANDOAC,
AHANDOM, AHKDDAEAC, AHKDDAEM, AHKDDOAC, AHKDDOM, RAADDAEAC, RAADDAEM,
RAADDOAC, RAADDOM, RANDAEAC, RANDAEM, RANDOAC, RANDOM, RKDDAEAC, RKDDAEM,
RKDDOAC, RKDDOM
TEAAC, TEAM, TEKC
AFAHAEBABEAC., AFAHAEBABEM., AFAHAEBAYAC., AFAHAEBAYM., AFAHAEBLEAC.,
AFAHAEBLEM., AFAHAEBUEAC., AFAHAEBUBEM., AFAHAEUAC., AFAHAEUYM.,
AFAHOBABEAC., AFAHOBABEM., AFAHOBAYAC., AFAHOBAYM., AFAHOBLEAC.,
AFAHOBLEM., AFAHOUBEAC., AFAHOUBEM., AFAHOUYAC., AFAHOUYM., AFRAEBABEAC.,
AFRAEBABEM., AFRAEBAYAC., AFRAEBAYM., AFRAEBLEAC., AFRAEBLEM., AFRAEBUEAC.,
AFRAEBUBEM., AFRAEUAC., AFRAEUYM., AFROBABEAC., AFROBABEM., AFROBAYAC.,
AFROBAYM., AFROBLEAC., AFROBLEM., AFROUBEAC., AFROUBEM., AFROUYAC.,
AFROUYM., PAHAEBABEAC., PAHAEBABEM., PAHAEBAYAC., PAHAEBAYM., PAHAEBLEAC.,
PAHAEBLEM., PAHAEBUEAC., PAHAEBUBEM., PAHAEUAC., PAHAEUYM., PAHOBABEAC.,

PAHOBABEM., PAHOBYAC., PAHOBYM., PAHOBLEAC., PAHOBLEM., PAHOUBEAC.,
PAHOUBEM., PAHOUYAC., PAHOUYM., PRAEBABEAC., PRAEBABEM., PRAEBAYAC.,
PRAEBAYM., PRAEBLEAC., PRAEBLEM., PRAEUBEAC., PRAEUBEM., PRAEUYAC.,
PRAEUYM., PROBABEAC., PROBABEM., PROBAYAC., PROBAYM., PROBLEAC., PROBLEM.,
PROUBEAC., PROUBEM., PROUYAC., PROUYM.

Execution Image

```
..-best-problem x + v
> pipenv run python3 main.py < input.txt > output.txt
Loading .env environment variables...

~/oakgorithms/dy/the-best-problem on main ?2 14.67 B/s 14.67 B/s 192.168.253.203 66%
```

```
..-best-problem x + v
> cat output.txt
8806025134080000
THE
AABGAEAHITHAC, AABGAEAHITHM, AABGAERITHAC, AABGAERITHM, AABGOAHITHAC, AABGOAHITHM, AABGORITHAC, AABGORITHM, ALGAEAHITHAC
, ALGAEAHITHM, ALGAERITHAC, ALGAERITHM, ALGOAHITHAC, ALGOAHITHM, ALGORITHAC, ALGORITHM, KBGAEAHITHAC, KBGAEAHITHM, KBGAE
RITHAC, KBGAERITHM, KBGOAHITHAC, KBGOAHITHM, KBGORITHAC, KBGORITHM
ABECTBAAHE, ABECTBARE, ABECTBKHE, ABECTUAHE, ABECTURE, AYCTBAAHE, AYCTBARE, AYCTBKHE, AYCTUAHE, AYCTURE, LECTBAAHE, LECT
BARE, LECTBKHE, LECTUAHE, LECTURE
THIAI, THIS
AIEACEAITEAH, AIEACEAITEH, AIEACESTEAH, AIEACESTER, AIEEAITIAH, AIEEAITER, AIEEMESTEAH, AIEEMESTER, SEACEAITEAH, SEACEAI
TER, SEACESTEAH, SEACESTER, SEMEAITIAH, SEMEAITER, SEMESTEAH, SEMESTER
BCAAI, BCAS, BCKI, WAAI, WAS, WKI
ACEAADIADGFBAAB, ACEAADIADGFBAL, ACEAADIADGFBKB, ACEAADIADGFUAB, ACEAADIADGFUL, ACEAADINGFBAAB, ACEAADINGFBAL, ACEAADING
FBKB, ACEAADINGFUAB, ACEAADINGFUL, ACEANIADGFBAAB, ACEANIADGFBAL, ACEANIADGFBKB, ACEANIADGFUAB, ACEANIADGFUL, ACEANINGFB
AAB, ACEANINGFBAL, ACEANINGFBKB, ACEANINGFUAB, ACEANINGFUL, ACEKDIADGFBAAB, ACEKDIADGFBAL, ACEKDIADGFBKB, ACEKDIADGFUAB,
ACEKDIADGFUL, ACEKDIADGFBAAB, ACEKDIADGFBAL, ACEKDIADGFBKB, ACEKDIADGFUAB, ACEKDIADGFUL, MEAADIADGFBAAB, MEAADIADGFBAL, MEA
ADIADGFBKB, MEAADIADGFUAB, MEAADIADGFUL, MEAADINGFBAAB, MEAADINGFBAL, MEAADINGFBKB, MEAADINGFUAB, MEAADINGFUL, MEANIADGFB
AAB, MEANIADGFBAL, MEANIADGFBKB, MEANIADGFUAB, MEANIADGFUL, MEANINGFBAAB, MEANINGFBAL, MEANINGFBKB, MEANINGFUAB, MEANING
FUL, MEKDIADGFBAAB, MEKDIADGFBAL, MEKDIADGFBKB, MEKDIADGFUAB, MEKDIADGFUL, MEKDIADGFBAAB, MEKDIADGFBAL, MEKDIADGFBKB, MEKDI
NGFUAB, MEKDIADGFUL
AADD, AND, KDD
IADTEAHEAITIADG., IADTEAHEAITING., IADTEAHESTIADG., IADTEAHESTING., IADTEREAITIADG., IADTEREAITING., IADTERESTIADG., IAD
TERESTING., INTEAHEAITIADG., INTEAHEAITING., INTEAHESTIADG., INTEAHESTING., INTEREAITIADG., INTEREAITING., INTERESTIADG.
, INTERESTING.
THAADAA, THAADK, THANAA, THANK, THKDAA, THKDK
BEAEBBA, BEAEU, BEOBA, BEOU, YAEBA, YAEU, YOBA, YOU
FAEAH, FAER, FOAH, FOR
AIAEABBBIADG, AIAEABBBING, AIAEABVIADG, AIAEABVING, AIAEAVBIADG, AIAEAVBING, AIAELBBIADG, AIAELBBING, AIAELVIADG, AIAELV
ING, AIOABBBIADG, AIOABBBING, AIOABVIADG, AIOABVING, AIOAVBIADG, AIOAVBING, AIOLBBIADG, AIOLBBIING, AIOLBVIADG, AIOLBVING,
SAEABBBIADG, SAEABBBING, SAEABVIADG, SAEABVING, SAEAVBIADG, SAEAVBING, SAEALBBIADG, SAEALBBING, SAEALVIADG, SAEALVING, SOABB
```