Problem I. ICPC Isolation

Time limit: 2 seconds
Memory limit: 1024 megabytes

In AMPPZ 2025, 80 teams from 27 institutions are competing. The abbreviations of these institutions are UW, UJ, UWR, MAP, PW, AGH, PG, NLU, PUT, PO, PWR, SGGW, UMCS, UR, ZUT, DTP, GOO, HUA, KUL, PL, PM, PS, UAM, UG, UMK, UO, WAT. Here is the complete table showing the number of teams from each institution[2]:

full name	abbreviation	number of teams
Uniwersytet Warszawski	UW	11
Uniwersytet Jagiello ski	UJ	9
Uniwersytet Wrocawski	UWR	8
Mistrzostwa w Algorytmice i Programowaniu (secondary schools)	MAP	7
Politechnika Warszawska	PW	6
Akademia G ó rniczo-Hutnicza im. Stanisawa Staszica w Krakowie	AGH	5
Politechnika Gda ska	PG	4
Wysza Szkoa Biznesu - National-Louis University	NLU	3
Politechnika Pozna ska	PUT	3
Politechnika Opolska	PO	2
Politechnika Wrocawska	PWR	2
Szkoa G ó wna Gospodarstwa Wiejskiego w Warszawie	SGGW	2
Uniwersytet Marii Curie-Skodowskiej w Lublinie	UMCS	2
Uniwersytet Rzeszowski	UR	2
Zachodniopomorski Uniwersytet Technologiczny w Szczecinie	ZUT	2
Digital Technology Poland	DTP	1
Google	GOO	1
Huawei	HUA	1
Katolicki Uniwersytet Lubelski Jana Pawa II	KUL	1
Politechnika ó dzka	PL	1
Politechnika Morska w Szczecinie	PM	1
Politechnika lska	PS	1
Uniwersytet im. Adama Mickiewicza w Poznaniu	UAM	1
Uniwersytet Gda ski	UG	1
Uniwersytet Mikoaja Kopernika w Toruniu	UMK	1
Uniwersytet Opolski	UO	1
Wojskowa Akademia Techniczna	WAT	1

The contest hall is an 8×10 grid consisting of 8 rows with 10 workstations each. To prevent unauthorized communication, the organizers must find an arrangement in which teams from the same institution do not sit next to each other – neither sharing an edge nor a corner.

The audience has its favorite – a team from the institution whose abbreviation is given in the input. The film crew has already set up their cameras in the top-left corner of the contest hall, so one team from the institution given in the input must be seated there.

Find any arrangement of teams that satisfies the given conditions.

Input

The only line contains a word consisting of 2 to 4 uppercase letters – the abbreviation of the favorite institution (one of the 27 listed above).

[2]The list of teams may change slightly between the preparation of this task and the contest.

Output

Print the found arrangement of teams – 8 lines, each with 10 words (abbreviations) separated by spaces. The first word in the first line must match the favorite institution provided in the input. If multiple solutions exist, print any of them.

Note

In the example test, the audience's favorite is Uniwersytet Wrocawski[3]. The provided output contains correct abbreviations and counts, and UWR indeed appears in the top-left corner. However, **this is not a valid output**, because in many places teams from the same institution are adjacent to each other. Below, three example collisions are highlighted in gray.

UWR	MAP	MAP	UJ	PL	UW	UW	SGGW	ZUT	GOO
MAP	PUT	UR	KUL	UW	UW	PM	AGH	UWR	AGH
PS	UJ	UWR	UW	UWR	MAP	UWR	PG	UWR	PWR
PW	HUA	PW	AGH	PG	DTP	UW	UW	UW	PWR
MAP	UG	NLU	UJ	PUT	UAM	UW	UJ	UJ	UW
NLU	ZUT	PW	WAT	UWR	AGH	UMCS	UR	UJ	AGH
PUT	UJ	SGGW	PG	PW	MAP	PO	MAP	UJ	UWR
UMCS	PO	PW	PW	UO	UW	PG	UJ	NLU	UMK

[3]Perhaps because one of UWR's teams won the previous edition of AMPPZ.