# 02. Fishing Competition



*You are a longtime captain of an old fishing vessel. The new fishing season begins and you prepare your ship to set sail in search of the big catch…*

You will be given an integer **n** for the **size** of the **fishing area** with a **square** shape. On the next **n** lines, you will receive the **rows** of the **fishing area**. You will be placed in a **random position**, marked with the letter '**S**'. There will be fishing passages on **random positions**, marked with a **single digit**. Whirlpools may also be **marked** with '**W**'. All of the empty **positions** will be marked with **'-'**.

Each turn until the "**collect the nets**" command is received you will be given **commands** for **your movement**. Move commands will be: "**up**", "**down**", "**left**", and "**right**".

* If you **move** to a **fish passage**, you **collect** **the amount** **equal** to the **digit** **there**, the **passage disappears** and should be replaced by **'-'**.
* If you **fall into a whirlpool** – the **ship sinks** and **loses its catch**, the **program ends**.
* If you **leave the fishing area** (go out of the boundaries of the matrix) depending on the move command you will be **moved to the opposite side of the one you were on**.

/**Example:** In a **3x3** matrix you are at position **[1,2]** and receive the command "**right**" you will be moved to position **[1,0]**./

You need **at least** **20 tons** of fish to be considered a successful season. Keep in mind that even if the **quotа is reached** the **ship continues to move**.

### Input

* On the first line, you are given the integer **n** – the size of the **square** matrix.
* The **next n lines** hold the values for every **row**.
* On each of the next lines, you will get a move command.

### Output

* On the **first** line:
* If the ship **falls into a whirlpool**, print only this message and stop the program:
* **"You fell into a whirlpool! The ship sank and you lost the fish you caught. Last coordinates of the ship: [n,n]"**
* If the **ship reaches** the quota:
* **"Success! You managed to reach the quota!"**
* If the **ship did not reach** the quota:
* **"You didn't catch enough fish and didn't reach the quota!**

**You need {lack of fish} tons of fish more."**

* On the **next** line.
* If the **catch quantity is bigger than zero**, print:
* **"Amount of fish caught: {quantity} tons."**
* else: **do not print** anything.
* If you **didn't get into a whirlpool**, print the **matrix**.

### Constraints

* The size of the **square** matrix will be between **[2…10].**
* Only the letters '**S**' and '**W**' will be present in the matrix.
* The **fish passages** are represented by **single positive digits** /tons/ between **[1…9]**.
* It is expected that there will only be either **zero** or **one** **whirpool** present, marked with the **letter** - '**W**'.
* Your position will be marked with '**S**'.

### Examples

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| **Input** | **Output** |
| 4  ---S  ----  9-5-  34--  down  down  right  down  collect the nets | You didn't catch enough fish and didn't reach the quota! You need 8 tons of fish more.  Amount of fish caught: 12 tons.  ----  ----  --5-  S4-- |
| **Comment** | |
| The first command is **"down"**. The ship moves to position **[1,3]** followed by the command **"down" [2,3]** andthen the command **"right".** The ship leaves the matrix's boundaries and transfers to the opposite side at position **[2,0]**. The ship comes across a **fish passage** with a quantity of 9 tons and gets it. After executing the third command, the **fishing area** will appear as follows:  ----  ----  S-5-  34--  Then you receive the command **"down"** again.You move to the passage of **3** tons and add them to the others **9**. Your catch is **9 + 3 = 12** tons. In the end, you get the command **"collect the nets"** and the program ends. | |

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| **Input** | **Output** |
| 5  S---9  777-1  W333-  11111  -----  down  down  right  down  collect the nets | You fell into a whirlpool! The ship sank and you lost the fish you caught. Last coordinates of the ship: [2,0] |
| **Comment** | |
| The first command is **"down"**. The ship moves to position **[1,0]** and gets **7** tons of fish. Follow the command **"down"** -> **[2,0]** The ship **falls into a whirlpool and sinks.** You lose the entire catch and the program ends. | |

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| **Input** | **Output** |
| 5  S---9  777-1  --5--  11W11  988--  down  down  down  down  down  down  right  right  right  collect the nets | Success! You managed to reach the quota!  Amount of fish caught: 31 tons.  ----9  ---S1  --5--  -1W11  -88-- |
| **Comment** | |
| Result is: **7 + 1 + 9 +7 + 7 = 31**. You succeeded! | |