

The Ascended King

by: [Arya Sudewa](#)

Time Limit: 1 s

Memory Limit: 256 MB

Deskripsi

King Dusra dahulunya dikenal sebagai pemimpin bijaksana yang membawa kerajaan menuju era keemasan. Namun di senja usianya, ketakutan bahwa kematiannya akan mengakhiri kedamaian berubah menjadi paranoia. Demi terus melindungi rakyatnya, ia melakukan ritual terlarang untuk membelah jiwanya ke dalam Dimensi Fisik dan Dimensi Astral agar dapat memerintah selamanya. Tragisnya, ritual tersebut gagal. Bukannya memperoleh keabadian, King Dusra justru kehilangan akal sehatnya dan berubah menjadi anomali hidup yang kini perlakan menghancurkan struktur kedua dimensi dengan kekuatannya yang tidak stabil.



Ren adalah satu-satunya ksatria yang mampu menembus batas antar dimensi. Ia menyadari bahwa pertahanan abadi King Dusra perlakan retak akibat luapan energinya sendiri. Kini, ia harus bermanuver di antara Dimensi Fisik dan Astral untuk menghindari gelombang serangan destruktif King Dusra, dan menjaga kekuatannya tetap utuh hingga momen keruntuhan sang Raja tiba.

Terdapat dua ruang dimensi paralel yaitu Dimensi Fisik dan Dimensi Astral berukuran $N \times N$. Struktur fisik kedua ruang dimensi adalah identik. Ren mulai di koordinat $(1, 1)$ pada Dimensi Fisik dengan nyawa awal HP_{start} .

Misi Ren adalah bertahan hidup menghadapi serangan King Dusra yang akan berlangsung selama T giliran. Kesempatan untuk menyerang balik King Dusra hanya akan terbuka jika Ren

mampu berdiri tegak ($HP > 0$) di giliran ke- T . Semakin banyak sisa HP yang dimiliki Ren di akhir, semakin besar peluangnya untuk memulihkan kedamaian kerajaan.

Pada setiap awal giliran, Ren wajib memilih satu dari tiga aksi berikut:

1. **Stay:** Ren bertahan di posisi dan dimensi saat ini tanpa bergerak.
2. **Dash:** Ren melesat ke salah satu dari 8 arah (horizontal, vertikal, atau diagonal) di dimensi yang sama. Ren dapat berpindah sejauh apa pun ke arah tersebut, selama jalur yang dilalui tidak terhalang dinding (#). Ren tidak dapat keluar dari batas ruang dimensi.
3. **Warp:** Ren berpindah dimensi (dari Fisik ke Astral atau sebaliknya) pada posisi baris dan kolom yang sama. Aksi ini mengorbankan HP Ren sebesar K .

Setelah Ren menyelesaikan aksinya, King Dusra akan melancarkan serangan sesuai pola yang telah ditentukan untuk giliran tersebut dan mengurangi HP Ren jika ia berada di area terdampak. Berikut jenis-jenis serangannya:

1. **Tipe 1 (Physical Purge):** Gelombang energi yang memberikan D_{realm} damage kepada siapa pun yang berada di Dimensi Fisik. Dimensi Astral aman dari serangan ini.
2. **Tipe 2 (Astral Annihilation):** Gelombang energi yang memberikan D_{realm} damage kepada siapa pun yang berada di Dimensi Astral. Dimensi Fisik aman dari serangan ini.
3. **Tipe 3 (Row Slash):** King Dusra membelah kedua dimensi secara horizontal pada baris R , memberikan D_{sword} damage di sepanjang baris R pada kedua dimensi.
4. **Tipe 4 (Column Slash):** King Dusra membelah kedua dimensi secara vertikal pada kolom C , memberikan D_{sword} damage di sepanjang kolom C pada kedua dimensi.

Batasan

- $2 \leq N \leq 2000$
- $1 \leq T \leq 10^6$
- $1 \leq HP_{start} \leq 10^9$
- $0 \leq K, D_{realm}, D_{laser} \leq 1000$
- Dipastikan petak (1, 1) dan (1, 2) adalah lantai kosong (.).

Format Masukan

Masukan terdiri dari beberapa baris:

1. Dua bilangan bulat N, T (Ukuran ruang dimensi dan jumlah giliran).
2. Dua bilangan bulat HP_{start}, K (HP awal dan biaya *Warp*).
3. Dua bilangan bulat D_{realm}, D_{sword} (Besar damage masing-masing tipe serangan).
4. Peta grid berukuran $N \times N$ yang berlaku untuk kedua dimensi:
 - . : Lantai kosong (dapat dilewati).
 - # : Dinding (tidak dapat dilewati).
5. T baris berikutnya mendeskripsikan pola serangan King Dusra. Setiap baris dimulai dengan satu bilangan bulat *tipe*:
 - Jika *tipe* adalah 1 atau 2: Tidak ada input tambahan di baris ini.
 - Jika *tipe* adalah 3: Diikuti oleh bilangan bulat R (indeks baris, 1-based).
 - Jika *tipe* adalah 4: Diikuti oleh bilangan bulat C (indeks kolom, 1-based).

Format Keluaran

Jika Ren masih bertahan hidup setelah giliran ke- T , keluarkan:

The barrier is down and I still hold $\{HP_{Ren}\}$ HP. Your reign ends this instant.

Sedangkan, jika Ren tidak mungkin bertahan hidup setelah giliran ke- T , keluarkan:

Insignificant... You were never a threat to my eternity.

Contoh Masukan 1

```
4 3
100 10
70 50
....
##.#
#.#
.#.#
4 1
1
3 2
```

Contoh Keluaran 1

The barrier is down and I still hold 90 HP. Your reign ends this instant.

Penjelasan Contoh 1

Dari input, didapatkan informasi sebagai berikut:

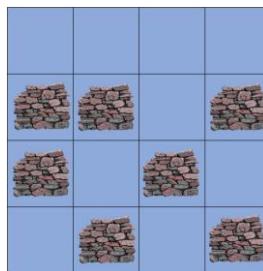
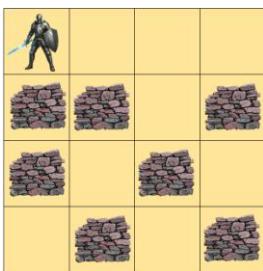
- Ruang dimensi berukuran 4×4 . ($N = 4$)
- Ren harus bertahan hidup selama 3 giliran. ($T = 3$)
- Ren mulai dengan 100 HP. ($HP_{start} = 100$)
- Biaya untuk melakukan Warp adalah 10 HP. ($K = 10$)
- Damage dari serangan dimensi adalah 70. ($D_{realm} = 70$)
- Damage dari serangan pedang adalah 50. ($D_{sword} = 50$)

Dari 3 giliran yang dilalui, King Dusra melakukan serangan-serangan berikut:

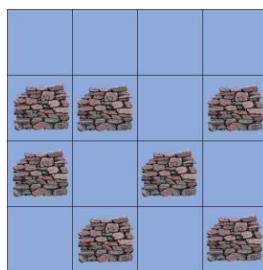
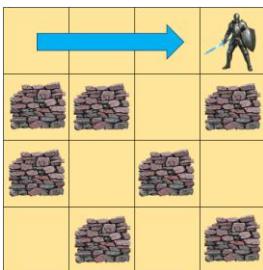
- Serangan pedang ke kolom 1.
- Serangan gelombang energi ke Dimensi Fisik.
- Serangan pedang ke baris 2.

Untuk mempermudah penjelasan, disediakan ilustrasi dari setiap aksi yang Ren lakukan dan setiap serangan yang King Dusra lakukan. Grid di kiri menunjukkan kondisi Dimensi Fisik, sedangkan grid di kanan menunjukkan kondisi Dimensi Astral.

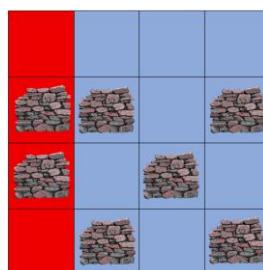
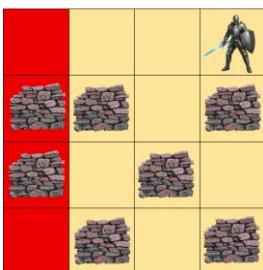
- **Kondisi awal** ($HP = 100$)



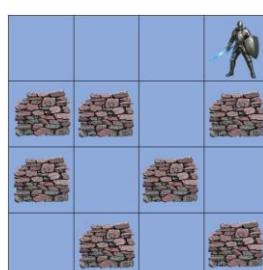
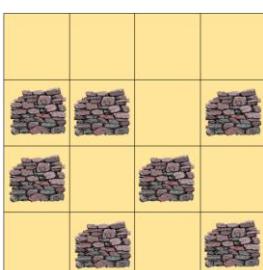
- **Aksi 1:** Dash ke (1, 4) ($HP = 100$)



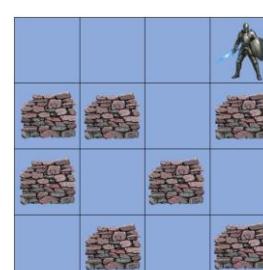
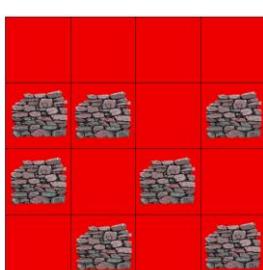
- **Serangan 1:** Serangan pedang ke kolom 1 ($HP = 100$)



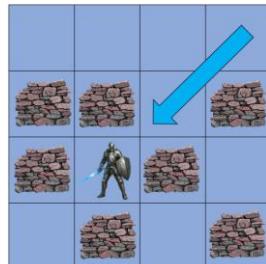
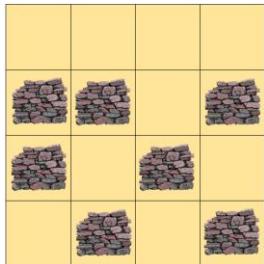
- **Aksi 2:** Warp ke Dimensi Astral ($HP = 100 - 10 = 90$)



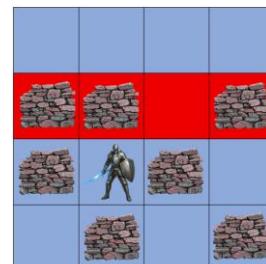
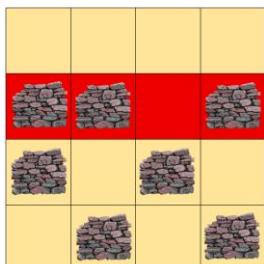
- **Serangan 2:** Serangan gelombang energi ke Dimensi Fisik ($HP = 90$)



- **Aksi 3:** Dash ke (3, 2) ($HP = 90$)



- **Serangan 3:** Serangan pedang ke baris 2 ($HP = 90$)



Setelah melalui 3 giliran, Ren masih bertahan hidup dengan $HP = 90$. Dapat dibuktikan tidak ada cara Ren memilih aksi di mana HP akhir bernilai lebih dari 90 setelah semua giliran. Perlu dicatat bahwa aksi yang dilakukan Ren di atas hanyalah salah satu cara Ren bisa bertahan hidup dengan HP akhir bernilai 90. Ada banyak cara lain Ren memilih aksi agar HP Ren bernilai 90 setelah 3 giliran.

Contoh Masukan 2

```
3 3
100 19
96 43
...
##.
...
1
2
3 1
```

Contoh Keluaran 2

| |
|---|
| The barrier is down and I still hold 19 HP. Your reign ends this instant. |
|---|

The Ascended King

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Time Limit: 1 s

Memory Limit: 256 MB

Description

King Dusra was once known as a wise leader who brought the kingdom to a golden age. However, in his twilight years, the fear that his death would end the peace turned into paranoia. To keep protecting his people, he performed a forbidden ritual to split his soul into the Physical and Astral Dimensions so he could rule forever. Tragically, the ritual failed. Instead of gaining immortality, King Dusra lost his mind and became a living anomaly. Now, he is slowly destroying the structure of both dimensions with his unstable power.



Ren is the only knight able to breach the veil between dimensions. He perceives that King Dusra's immortal shield is crumbling due to the overflow of his own power. Now, he has to maneuver through the Physical and Astral Realms to dodge the destructive onslaught, keeping his vitality intact until the King's inevitable collapse.

There are two parallel dimensions, the Physical Dimension and the Astral Dimension, both of size $N \times N$. The physical structure of both dimensions is identical. Ren starts at coordinate $(1, 1)$ in the Physical Dimension with initial health points of HP_{start} .

Ren's mission is to survive King Dusra's onslaught, which will last for T turns. The opportunity to counterattack will only arise if Ren remains standing ($HP > 0$) at the T -th turn. The more HP Ren has remaining at the end, the greater his chance of restoring peace to the kingdom.

At the beginning of each turn, Ren must choose one of the following three actions:

1. **Stay**: Ren remains in his current position and dimension without moving.
2. **Dash**: Ren dashes in one of the 8 directions (horizontal, vertical, or diagonal) within the same dimension. He can travel any distance in that direction, provided the path is not blocked by a wall (#). Ren cannot move outside the dimension's boundaries.
3. **Warp**: Ren switches dimensions (from Physical to Astral or vice versa) at the same coordinates. This action costs K HP.

After Ren completes his action, King Dusra will unleash an attack based on the predetermined pattern for that turn, reducing Ren's HP if he is caught in the affected area. The attack types are as follows:

1. **Type 1 (Physical Purge)**: An energy wave that deals D_{realm} damage to anyone in the Physical Dimension. The Astral Dimension is safe from this attack.
2. **Type 2 (Astral Annihilation)**: An energy wave that deals D_{realm} damage to anyone in the Astral Dimension. The Physical Dimension is safe from this attack.
3. **Type 3 (Row Slash)**: King Dusra cleaves through both dimensions horizontally at row R , dealing D_{sword} damage along row R in both dimensions.
4. Type 4 (Column Slash): King Dusra cleaves through both dimensions vertically at column C , dealing D_{sword} damage along column C in both dimensions.

Constraints

- $2 \leq N \leq 2000$
- $1 \leq T \leq 10^6$
- $1 \leq HP_{start} \leq 10^9$
- $0 \leq K, D_{realm}, D_{laser} \leq 1000$
- Cells (1, 1) and (1, 2) are guaranteed to be empty floors (.).

Input Format

The input consists of several lines:

1. Two integers N, T (Dimension size dan jumlah giliran).
2. Two integers HP_{start}, K (Initial HP and Warp cost).
3. Two integers D_{realm}, D_{sword} (Damage values for the respective attack types).
4. An $N \times N$ grid map representing the layout for both dimensions:
 - . : Empty floor (passable).
 - # : Wall (impassable).
5. The next T lines describe King Dusra's attack patterns. Each line starts with an integer $type$:
 - If $type$ is 1 or 2: No additional input in this line.
 - If $type$ is 3: Followed by an integer R (row index, 1-based).
 - If $type$ is 4: Followed by an integer C (column index, 1-based).

Output Format

If Ren survives after the T -th turn, output:

The barrier is down and I still hold $\{HP_{Ren}\}$ HP. Your reign ends this instant.

Otherwise, if it is impossible for Ren to survive after the T -th turn, output:

Insignificant... You were never a threat to my eternity.

Example Input 1

```
4 3
100 10
70 50
....
##.#
#.#
.#.#
4 1
1
3 2
```

Example Output 1

```
The barrier is down and I still hold 90 HP. Your reign ends this instant.
```

Explanation 1

From the input, we obtain the following information:

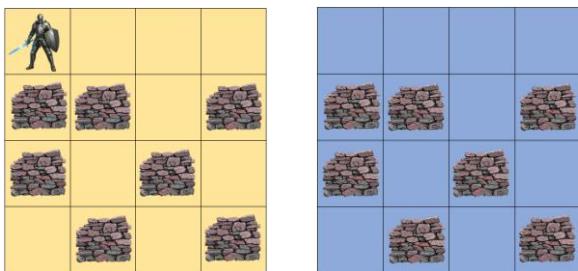
- The dimension size is 4×4 . ($N = 4$)
- Ren must survive for 3 turns. ($T = 3$)
- Ren starts with 100 HP. ($HP_{start} = 100$)
- The cost to perform a *Warp* is 10 HP. ($K = 10$)
- Damage from realm attacks is 70. ($D_{realm} = 70$)
- Damage from sword attacks is 50. ($D_{sword} = 50$)

Over the course of the 3 turns, King Dusra performs the following attacks:

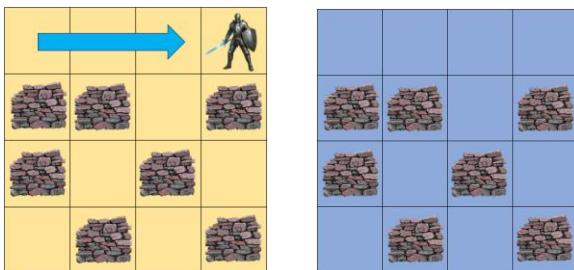
- Sword attack on column 1.
- Energy wave attack on the Physical Dimension.
- Sword attack on row 2.

To simplify the explanation, illustrations are provided for every action Ren takes and every attack King Dusra unleashes. The left grid represents the Physical Dimension, while the right grid represents the Astral Dimension.

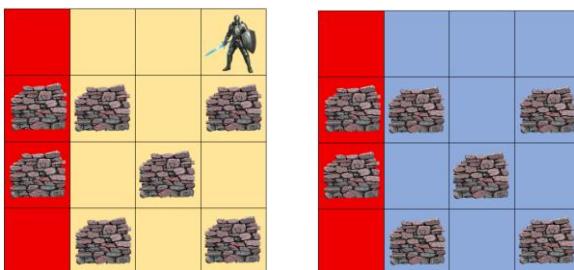
- **Initial state** ($HP = 100$)



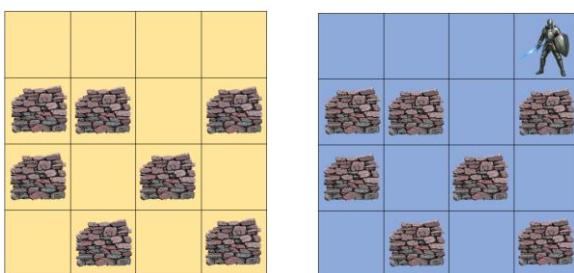
- **Action 1:** Dash to (1, 4) ($HP = 100$)



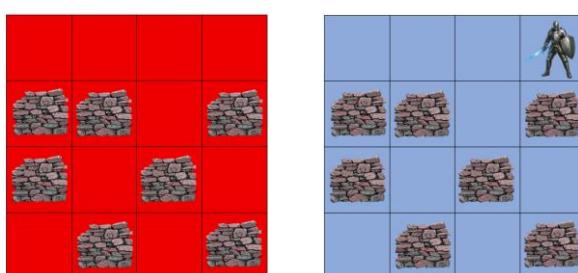
- **Attack 1:** Sword attack on column 1 ($HP = 100$)



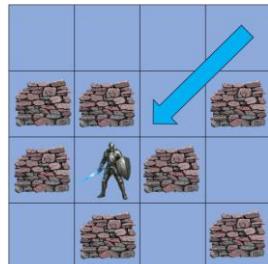
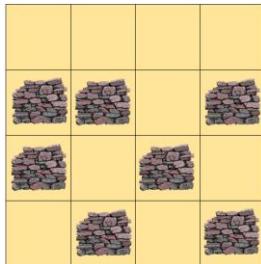
- **Action 2:** Warp to the Astral Dimension ($HP = 100 - 10 = 90$)



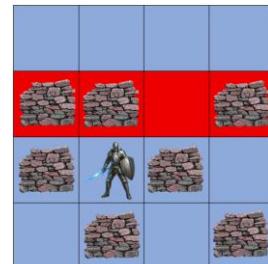
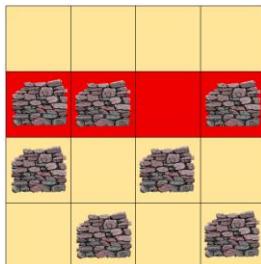
- **Attack 2:** Energy wave attack on the Physical Dimension ($HP = 90$)



- **Action 3:** Dash to (3, 2) ($HP = 90$)



- **Attack 3:** Sword attack on row 2 ($HP = 90$)



After surviving 3 turns, Ren remains alive with $HP = 90$. It can be proven that there is no sequence of actions resulting in a final HP greater than 90. Note that the actions described above are just one example of how Ren can survive with a final HP of 90. There are many other sequences of actions that result in Ren having 90 HP after 3 turns.

Example Input 2

```
3 3
100 19
96 43
...
#..
...
1
2
3 1
```

Example Output 2

| |
|---|
| The barrier is down and I still hold 19 HP. Your reign ends this instant. |
|---|