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## Clam Card

### *The Kata*

Implement a system for a contactless travel card for subways.

- The card does not need to be topped up.
- The card charges the owner's bank account directly when used.
- The card is used by touching in and out at train stations.
- The train system accepting this card has two categorical zones of stations, Zone A and Zone B.
- The stations within the zones are as follows:

| Zone A   | Zone B   |
|----------|----------|
| Asterisk | Bison    |
| Amersham | Bugel    |
| Aldgate  | Balham   |
| Angel    | Bullhead |
| Anerley  | Barbican |

- Travelling within zone B is more expensive than travelling in Zone A.
- The price of zone B is inclusive of travelling within zone A.
- If one of the stations is within Zone 2 at any point in a journey, the price for zone 2 will be charged.
- The fares are as described below:

| Zone   | Single | Day    | Week    | Month    |
|--------|--------|--------|---------|----------|
| Zone A | \$2.50 | \$7.00 | \$40.00 | \$145.00 |
| Zone B | \$3.00 | \$8.00 | \$47.00 | \$165.00 |

- A **Single** is a journey from one station to another.
- A **Day** fare includes all single journeys made within a single day.
- A **Week** fare includes all single journeys made within a single week.
- A **Month** fare includes all single journeys made within a single month.
- No matter how many journeys are made within one of the time boundaries within a particular zone, the price will cap at that time period's fare.

### User behavior Scenarios

Implement the following:

#### One-Way Zone 1 Journey

Given Michael has an Clam Card

And Michael travels from Asterisk to Aldgate

Then Michael will be charged \$2.50 for his first journey

#### One-Way Zone 1 to Zone 2 Journey

Given Michael has an Clam Card

And Michael travels from Asterisk to Barbican

source: <https://github.com/iplebre/KataCollection/blob/master/Specifications/ClamCard.md>



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Then Michael will be charged \$3.00 for his first journey

#### Multiple journeys

Given Michael has an Clam Card

And Michael travels from Asterisk to Aldgate

And Michael travels from Asterisk to Balham

Then Michael will be charged \$2.50 for his first journey

And a further \$3.00 for his second journey

#### Multiple Journeys including Zone B reaching daily cap

Given Michael has an Clam Card

And Michael travels from Asterisk to Barbican

And Michael travels from Barbican to Balham

And Michael travels from Balham to Bison

And Michael travels from Bison to Asterisk

Then Michael will be charged \$3.00 for his first journey

And a further \$3.00 for his second journey

And a further \$2 for his third journey

And a further \$0.00 for his fourth journey

#### Multiple Journeys Zone A reaching daily cap

Given Michael has an Clam Card

And Michael travels from Asterisk to Aldgate

And Michael travels from Aldgate to Angel

And Mi

chael travels from Angel to Antelope

And Michael travels from Antelope to Asterisk

Then Michael will be charged \$2.50 for his first journey

And a further \$2.50 for his second journey

And a further \$2 for his third journey

And a further \$0.00 for his fourth journey

### **Bonus**

Take into account for return journeys, the new fares are as described below:

| Zone   | Single Return |
|--------|---------------|
| Zone A | \$2.00        |
| Zone B | \$2.50        |

1. A Single is a journey from one station to another.
2. A Return is a single journey where the next immediate journey is the inverse of the previous journey.
3. Travelling from station A to station B, then from Station B to station A, classifies as a return.
4. A Day fare still includes all single and return journeys made within a single day.
5. A Week fare still includes all single and return journeys made within a single week.
6. A month fare still includes all single and return journeys made within a single month.

#### Senario: **Multiple Return Journeys**

Given Michael has an Clam Card



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And Michael travels from Asterisk to Barbican  
And Michael travels from Barbican to Asterisk  
And Michael travels from Asterisk to Balham  
And Michael travels from Balham to Asterisk  
Then Michael will be charged \$3.00 for his first journey  
And a further \$2.50 for his second journey  
And a further \$1.50 for his third journey  
And a further \$0.00 for his fourth journey