Write a program that will assist the receptionist in seating customer parties at tables and booths in a large restaurant. Your program should accept for the receptionist the arrival time, the size of the party, whether the party desires a table or a booth, in the smoking or nonsmoking sections of the restaurant.

For each request in a list of requests, the program should provide a table number and the approximate waiting time before the party can be seated. The restaurant has the following seating characteristics:

Nonsmoking			Smoking		
Tables	Kind	Capacity	Tables	Kind	Capacity
1–4:	booths	6	5–10:	booths	6
11–20:	tables	4	21–30:	tables	4
31–40:	tables	4	41–50:	tables	4
51–55:	tables	6	56–60:	tables	6
61–65:	tables	2	66–70:	tables	2

Each table of the table groups is portable and can be moved such that as many as five tables of any group may be connected to seat a larger party than any one table could seat. This connection of tables is only possible if the sequential number of the tables to be used are vacant. Thus 2 four-person tables can be joined together to seat a party of 6; 3 four-person table can be joined to seat a party of 8, and so on.

Parties of 1 take 35 minutes, parties of 2 take 47 minutes at the restaurant (service is very predictable), parties of 3 or 4 take 52 minutes, while parties of 5 to 10 take 55 minutes. Parties of greater than 10 take (size of party $* 5 + 16$) minutes.

Your program should always assign the lowest booth/table number available. You should also process the requests in the order given and once an assignment is made, not change it.

Input

Your program should accept a sequence of reservation requests (the restaurant requires reservations). Each reservation consists of one line with an integer arrival time (in minutes past 8:00 p.m.), the party size (at least 1), a blank, then an 'S' or an 'N' (smoking or nonsmoking), a blank, then a 'B' or a 'T' (booth or table).

Output

For each reservation request which can be satisfied, your program should then print the list of table numbers or the table/booth number and the number of minutes the party will have to wait after their arrival. If a request cannot be satisfied, print 'Impossible'.

Sample Input

```
60 5 N B
0 4 N B
10 3 N B
10 2 N B
13 2 N B
0 6 N B
30 12 N T
60 8 S B
```

Sample Input

```
1 0
2 0
3 0
4 0
1 0
2 47
11 12 13 14 15 0
Impossible
```