GST Calculator

Maslee is a student at a public university. Since the implementation of Good & Services Tax (GST), the prices for food at cafeterias in the university have become more expensive and Maslee has decided to cook his own meal.

GST rates are classified into two types, which are:

1. Standard-Rated (SR)

Standard-rated supplies are taxable supplies of goods and services which are subject to a proposed rate of 6%.

2. Zero-Rated (ZR)

Zero-rated supplies are taxable supplies of goods and services which are subject to GST at 0% rate.

Below is an example of a receipt after GST:

Item	Quantity	Price @	GST Rates
Meksis Prepaid	1	30.00	SR
Jati Rice	1	32.00	ZR
Rybena Juice	2	18.00	SR
Peanut Butter	5	4.50	SR
Total Amount Including GST			125.81
Total Amount GST Paid			5.31

And this is how to calculate the new prices for goods and services after GST:

Meksis Prepaid 1 x RM30.00 = RM30.00 + 6% = RM31.80 Jati Rice 1 x RM32.00 = RM32.00 + 0% = RM32.00

Rybena Juice $2 \times RM18.00 = RM36.00 + 6\% = RM38.16$

Peanut Butter $5 \times RM4.50 = RM22.50 + 6\% = RM23.85$

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Total Including GST = RM125.81

Your task is to make a simple calculator to help Maslee to calculate the total amount that Maslee needs to pay for items and services after GST and the amount of GST paid for the items and services.

Input

Input consists of integer T denoting number of test cases. Each test case consists of integer N denoting number of items followed by N-lines of item details (name, quantity, price, and GST-rate). Item name will consists of single string, and price are rounded into 2 decimal points.

Output

For each test case, output consists of case number followed by 2 lines of total paid amount including GST and total amount GST paid.

Example

Input:

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MeksisPrepaid 1 30.00 SR JatiRice 1 32.00 ZR RybenaJuice 2 18.00 SR PeanutButter 5 4.50 SR

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GardenihaBread 3 2.40 ZR WaterSpinach 5 1.10 ZR iPong6 1 2779.00 SR

Output:

Case #1:

Total Amount Include GST: 125.81 Total Amount GST Paid: 5.31

Case #2:

Total Amount Include GST: 2958.44 Total Amount GST Paid: 166.74