Problem Domain:

Create an application than takes in customer requests (in JSON format) containing customer home insurance request data and returns quote premiums. Here is an example of a customer request:

```
{
    "CustomerID" : 1,
    "DwellingCoverage" : 100000,
    "HomeAge" : 5,
    "RoofType" : "Asphalt Shingles",
    "NumberOfUnits" : 3,
    "PartnerDiscount" : "Y"
}
```

Each customer's request will contain:

- Customer ID
- Dwelling coverage amount
- Home age value
- Roof construction type
- Number of units
- Discounted partner identifier

Beyond the customer's request, the following Base Premium and Rating Factor data is structured as follows:

(displayed in table format, feel free to restructure as class properties, enums, or any other data structure)

Table: tbl_Base_Premium

Base_Premium
$350

Table: tbl_Factor_Home_Age

Home_Age	Rating_Factor
0-10	1.00
11-35	1.50
36-100	1.80
100+	1.95

Table: tbl_Factor_Roof_Type

Roof_Type	Rating_Factor
Asphalt Shingles	1.00
Tin	1.70
Wood	2.00

Table: tbl_Factor_Num_Units

Num_Units	Rating_Factor
1	1.00
2	0.80
3	0.80
4	0.80

Table: tbl_Factor_Dwelling_Coverage

Dwelling_Coverage	Rating_Factor
$ 100,000	0.971
$ 150,000	1.104
$ 200,000	1.314
$ 250,000	1.471
$ 300,000	1.579
$ 350,000	1.761

- Factors for Dwelling Coverage must be linearly interpolated. For example, the applicable rating factor for a selected Dwelling Coverage of $280,000 is 1.536. The applicable rating factor for a selected Dwelling Coverage of $150,000 is 1.104.
- A customer with a discounted partner identifier of "Y" is entitled to 5% off their quoted monthly premium amount.

Each quote is calculated as follows:

Final Quoted Premium Amount = (Base Premium Amount * Applicable Dwelling Coverage Factor * Applicable Home Age Factor * Applicable Roof Type Factor * Applicable Number of Units Factor) – Discount Amount if Applicable

** all premiums are rounded to the nearest dollar*

For Example:

Customer ID 1's Quoted Monthly Premium = $350 * 0.971 * 1.00 * 1.00 * 0.80 = $272

Discounted amount = $272 * 0.05 = $13.60

Customer ID 1's Final Discounted Monthly Premium Amount = $272 – 13.60 = $258

Additional Customer Requests:

Your application should be able to correctly handle these customer requests as well:

```
{
    "CustomerID" : 2,
    "DwellingCoverage" : 275000,
    "HomeAge" : 22,
    "RoofType" : "Wood",
    "NumberOfUnits" : 1,
    "PartnerDiscount" : "Y"
}
```

```
{
    "CustomerID" : 3,
    "DwellingCoverage" : 300200,
    "HomeAge" : 108,
    "RoofType" : "Tin",
    "NumberOfUnits" : 4,
    "PartnerDiscount" : "N"
}
```