**1. Farm**

In the far future people on Mars developed multiple special plants with special effects, which were able to grow food more efficiently based on their nature.

There could be 3 types of plants on a farm: almond trees, spruces, and junipers. At least 2 of every type is present. The farm knows the total food produced. All plants produce food every month

**(Spruce-26 Almond-50, Juniper-14)**, which can be boosted or reduced by different events.

**Every month the production of each is growing by 4 by default.**   
Since **Spruces and Junipers are evergreens, they can grow leaves on their own every 5 months, increasing their production by 8.These two can also be at max production at 70 (can't be more than that),** at that point they speak and say "<Name> at full production!".

\*Almond trees, on the other hand, are very effective, when their production falls below 40, it is doubled!

### Both almond trees and spruces have special attributes, they can grow a mushroom every month,which has a chance (almond: 8%, spruce: 5%) that boosts the production by (almond: 10, spruce: 15) of that plant.

### Both plants can also rot every month with a chance of (almond: 13%, spruce: 4%) which reduces their production by (almond: 18, spruce: 20). Shroom growing always happens first! If any plant rots, no food is produced that month at all.

What is the production total on the farm after 80 months?

**2. Network**

In a home Network, there are multiple Devices with multiple attributes and capabilities.

There are 3 types of Devices: Lightweight, Normal and Smart. The Network knows about all Devices.

Every Device has an age and a battery life which is set when they are registered at the system.

Smart and Normal Devices have an actual screen size as well, while Lightweight Devices know the number of all other Lightweight Devices on the Network. Smart has an additional name attribute which has to be unique (just don’t write the same for 2), also they can show the number of Normal Devices whose remaining power differs from theirs within a range by a given amount.

Normal Devices have an additional attribute as well, we know the year when they were manufactured.

Also, all of them are able to calculate their own remaining power.

This differs based on the Device:

* Lightweight - loses 7 for every age, pluss have 20 more “power” for each Connected Device on the Network beside of them
* Smart - loses 15 for every age, also loses a fix amount based on their screen size (EDTV - 5, HD - 10, FULL HD - 15, UHD - 20)
* Normal - loses 3 for every age, if it was manufactured in 2000 or later its power is doubled if earlier it is halved

Implement these classes and their methods using the OOP principles!

**3. Taxi Company**

You are to model a Taxi Company's annual (52 week) passenger amount. The Company has Cars and Drivers, it knows about all of them.

The Taxi Company can have 3 types of Cars available: Gasoline user, Electric and Self-Driving.

Each Car has a Unique id, a Cost (Gasoline - 350, Electronic - 400, Self-Driving - 740) and the Amount of passengers they will carry to their destination per week.

Gasoline Cars require a Driver and they have a Maintenance cost (20, +10% each week) as well. Electric cars require a Driver too.

A Driver has a Mobile-Number (5 digit number from 00001 or random), a Name, an Age, a Salary (salary is the same as cost for cars) and also how Experienced they are (Beginner, Advanced, Professional). The Drivers all know each other's Mobile number (only the number, not which driver it belongs to).

Based on this Experience (which we gave to each Driver randomly), they can handle more rides per week (Beginner - 15, Advanced - 25, Professional - 40 -> these are known by the car). The Drivers for the Cars are chosen randomly.

You can assume every passenger pays 1 unit of money.

Self-Driving Cars are capable of carrying 70 passengers per week.

The Company can and will buy more Cars and Drivers if it has the money, but they can only buy Electronic or Self-Driving Cars (50-50 chance). For Electronic, they need to hire a Driver as well, which has a random Experience type from the 3 available.

Whenever a new Self-Driving Car is added to the Company's Car arsenal, all other Self-Driving Cars are out of order for maintenance for 1 week.

How many passengers did the Company gave a ride over a year?