**1).**Given an entity named **Television,** identify its attributes and explain how will you do Abstraction?

**Abstraction** is used to hide the internal functionality of the function from the users. The users only interact with the basic implementation of the function, but inner working is hidden. User is familiar with that **"what function does"** but they don't know **"how it does."**

In Python, an abstraction is used to hide the irrelevant data/class in order to reduce the complexity. It also enhances the application efficiency.

**Attributes in Television:**

* Screen Size
* Display colour (either rgb (or) black and white)
* Volume
* Type of Display(\* LED or LCD)
* Remote
* Processor

**Explanation:**

**#** Abstraction in television is explained as, Firstly we talk about screen; here we can see only the motion of pictures(video) but we will not see how actually the signals passing from motherboard to screen in order a run a video; we also don’t know how picture binary values is getting stored, we also don’t know how many filters are used in it in order to make the video clear. Next coming to audio we only hear the sound from the speakers but we don’t know their connections. This is about abstraction in Television.

**2.)** Given an entity named **Hospital,** explain Encapsulation with respect to it.

**Encapsulation:** Describes the concept of **bundling data and methods within a single unit**. So, for example, when you create a [class](https://pynative.com/python-classes-and-objects/), it means you are implementing encapsulation. A class is an example of encapsulation as it binds all the data members (instance variables) and methods into a single unit.

**Encapsulation with respect to Hospital:** Coming to encapsulation with respect to hospital,

See when a patient visit hospital, he consults doctor, the doctore prescribes him with certain medication and Diagnosis(treatments) according to his illness here the prescribtion of medicine is called as bundling of data and treatments given to him are methods, now both these prescribtion of medicine and treatments are written in patient reports it is called as wrapping of both methods and data in single unit called reports here.

**3.)**Given an entity named **TrafficSignal,** explain Polymorphism with respect to it.

**Polymorphism:**

It refers to the use of a single type entity (method, operator or object) to represent different types in different scenarios.

**Polymorphism in trafficsignal:**

Polymorphism in traffic signals is explained as, here there is only one object called traffic signal it has 3 different colour lights in it, the same traffic signal is used for 3 different functions like when the traffic signal is showing red colour means it symbolizes that vehicles

Should stop; and if it shows yellow means vehicles should get ready to move; and when it shows green colour means it symbolizes that vehicles should move.

1. Given an entity named **BroadBandConnection,** explain inheritance with respect to it.

**Inheritance :**

Inheritance allows us to define a class that inherits all the methods and properties from another class.

**Parent class** is the class being inherited from, also called base class.

**Child class** is the class that inherits from another class, also called derived class.

**Inheritance in** **broadband Connection**: attributes in broadband connection are upload speed, download speed, high speed internet, cables, fibre optics.

All the above mentioned attributes can be delivered to routers based on location, here the wideband width data over highspeed internet is transformed(inherited) into router.

1. Given an entity named **MobilePhone,** identify its static & dynamic attributes.

**Static attributes:**

* Camera
* Battery
* USB cables
* Cell phone body
* Sim tray
* Screen protection

**Dynamic attributes:**

Memory

Display

Processor

Cooling system

Wi-fi modem

Sim module