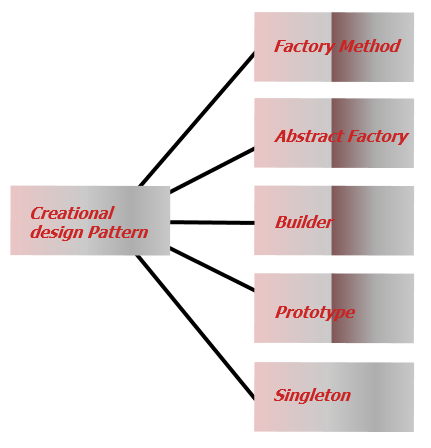
Design patterns deals with the mechanism of object creation. Basic creation may lead to lot of complication and design problem. This can be resolved with help of creational design patterns.

1. Factory pattern
2. Abstract factory patter
3. Builder pattern
4. Prototype pattern
5. Singleton pattern
6. Object pool pattern



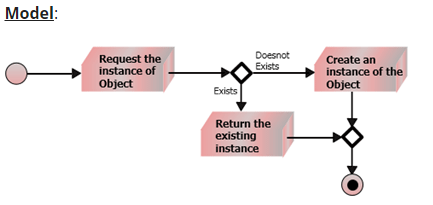
Singleton patter:

Designing a class in such a way that only one object of the class can exist

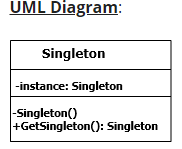
Useful for creating single global point of access to a limited resource is required. More appropriate than creating global variable. Which creates multiple point of access which lead to inconsistent value.

Pattern make sure only single object is created and ensures always there will be a single instance of the object.

Model



Uml:



Implementation:

1.class must have private static variable of singleton class

2. Implement private constructor (so that outsiders ma not instantiate it)

3. Public static method get the instance on the global object

This will act as single entry point.

Use of single ton class

Logger files,

Db connections

Driver access

Cache- memory

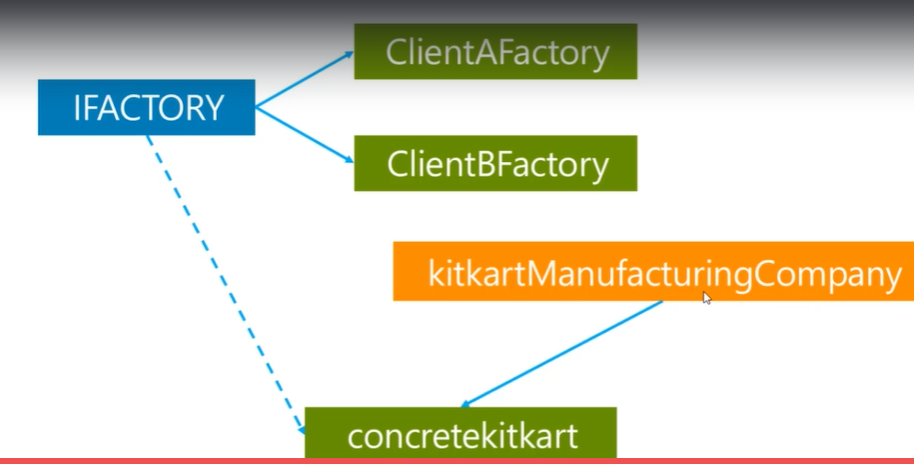
1. Hardware interface access Eg: Printer where in you don’t want multiple ppl to lock the hardware
2. Logger: Log class used for making log files where in it the logger takes data from the user and generate log if the ,multiple instance are trying to create log at same time there will be an issue they may end up editing same thing again and again
3. Cache object : Single global point of contact for all the future calls to the cache.
4. Configuration file object: Single instance is created and configuration information is maintained in memory so the next time onwards client can access information from in memory.

Factory patterns:

Real world factor is a place which produces the family of things

In code factory is a class that produces the family of the objects and we can have factory of objects and factory of methods.

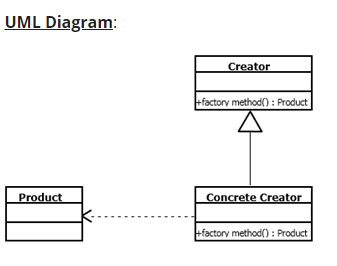
Eg: manufacturing company KitKart produces of the computer for their client multiple client



Model:



UML



Factory method takes care of one single product

Abstract factory class takes care of encapsulation of family of products.

Factory pattern:

Create concrete class instance without specifying exact class type

It is an object creation pattern

Used when sub class are given with privilege of instantiating object