Bike sharing systems are new generation of traditional bike rentals where whole process from membership, rental and return back has become automatic. Through these systems, user is able to easily rent a bike from a particular position and return back at another position. Currently, there are about over 500 bike-sharing programs around the world which is composed of over 500 thousands bicycles. Today, there exists great interest in these systems due to their important role in traffic, environmental and health issues.

Apart from interesting real world applications of bike sharing systems, the characteristics of data being generated by these systems make them attractive for the research. Opposed to other transport services such as bus or subway, the duration of travel, departure and arrival position is explicitly recorded in these systems. This feature turns bike sharing system into a virtual sensor network that can be used for sensing mobility in the city. Hence, it is expected that most of important events in the city could be detected via monitoring these data.

In this assignment we'll be dealing with data collected over several months which contain following information :

- instant: Observation ID
- dteday : Date of the observation
- season : season (1:springer, 2:summer, 3:fall, 4:winter)
- yr : year (0: 2011, 1:2012)
- mnth : month ( 1 to 12)
- holiday : whether day is holiday or not
- weekday : day of the week
- workingday : if day is neither weekend nor holiday, it is 1, otherwise is 0.
- weathersit :
- =>1: Clear, Few clouds, Partly cloudy, Partly cloudy
- =>2: Mist + Cloudy, Mist + Broken clouds, Mist + Few clouds, Mist
- =>3: Light Snow, Light Rain + Thunderstorm + Scattered clouds, Light Rain + Scattered clouds
- =>4: Heavy Rain + Ice Pallets + Thunderstorm + Mist, Snow + Fog
- temp : Normalized temperature in Celsius.
- atemp: Normalized feeling temperature in Celsius.
- hum: Normalized humidity. The values are divided to 100 (max)
- windspeed: Normalized wind speed. The values are divided by 67 (max)
- casual: count of casual users
- registered: count of registered users
- cnt: count of total rental bikes including both casual and registered

You are going to build a model for predicting "cnt", total number of bikes rented anyday , given other characteristics. Before you jump in and go ahead to build this model consider answering these questions .

1. Should you include variable "instant" in your model?
2. Can you include variable dteday as it is in your model Or should you extract components like day, weekday from this and use that in your model?
3. Casual and Registered; these variable simply contain break up of "cnt" into casual and registered users , this information will not be available to you when you apply this model to predict "cnt", should you include these variables in the model ?

Also when you are buildign your model dont forget to break your data into train, val and test in order to check performance. Get to work!