***Cars Sales Report***

* **Number of Cars : 465,768**
* **From Sales Date : sales in 2015 are so higher than 2014**
* **the models of cars that are good bought was from 2011 to 2015 and best One was 2013**
* **Common Cars were :Ford , Chevrolet , Nissan , Toyota , BMW , Dodge , Honda , Mercedes-Benz , Infiniti**
* **Lower Cars Sales were :Saab , Aston Martin , Fisker , Oldsmobile , Isuzu , Plymouth , Lotus , Geo , Daewoo**
* **popular models of cars were : F-150 , Escape , Fusion , Explorer , Edge , Focus**
* **Trims : the good Trims in Common Cars in Descending order :-**
* **The Trims are more attractive for customers :** Base , SE , Limited , XLT , LT
* **What about Cars ?**
  + **Ford cars :** SE , XLT , Limited , SEL
  + **BMW Cars :** 328i ,535i , Base ,528i , xDrive35i , 328i xDrive , 335i
  + **Chevrolet Cars :** LT , LTZ , LS , LT Feet , 1LT , Work Truck , 2LT , LS Feet
  + **Infiniti Cars :** G37X **,** G37 Journey , Base
  + **Mercedes-Benz Cars:** C250 Sport , S550 , E350 , GL450 4MATIC
  + **Nissan Cars :** 2.5 S , SV , 2.5 , S , 3.5 SV
  + **Toyota Cars :** LE , Base , SE ,Limited , XLE
* **Bodies of Cars :**
* **There are specific bodies the customer prefer it like :** Sedan , SUV , Crew Cab , Coupe , Minivan , Hatchback , Super crew , Convertible , Wagon , G Sedan
* **But if we look at specific cars :** 
  + **Ford Cars :** SUV , Sedan , Super Crew , Crew Cab , Hatchback , Coupe
  + **BMW Cars :**  Sedan , SUV , Convertible , Coupe , Hatchback
  + **Chevrolet Cars :** Sedan , SUV , Crew Cab , Coupe
  + **Dodge Cars:** Sedan , Minivan , SUV , Coupe
  + **Honda Cars:** Sedan , SUV , Minivan , Coupe
  + **Infiniti Cars:** G Sedan , SUV , Sedan
  + **Lexus Cars:** Sedan , SUV , Hatchback
  + **Mercedes-Benz Cars:** Sedan , SUV , convertible , Coupe
  + **Nissan Cars:** Sedan , SUV , Hatchback
  + **Toyota Cars:** Sedan , SUV , Hatchback
* **Customer Attract more for the Automatic Customer than manual**
* **We have branches in many states in USA so The Top 10 states where have More Purchased :** 
  + **FI state, with Sales:** $1,078,338,881 **\* Oh state, with Sales:** $293,433,604
  + **Ca state, with Sales:** $986,259,761 **\* Mo state, with Sales:** $224,624,373
  + **Tx state, with Sales:** $565,473,334
  + **Ga state, with Sales:** $397,258,779
  + **Pa state, with Sales:** $337,829,604
  + **Tn state, with Sales:** $331,581,088
  + **II state, with Sales:** $331,096,520
  + **Nj state, with Sales:** $313,326,805
* **There are a rule not every car have high rating mean it have high Sales , it's correct and the evidence :** 
  + **These cars have high Rating but it very low in sales :** 
    - **Rolls-Royce Cars: with 37 rating , price** $154,812.50
    - **Ferrari Cars: 37 rating , price** $130,823.53
    - **Lamborghini Cars: 44 rating , price** $113,666.67
    - **Bentley Cars : 35 Rating , price** $740,77.14
    - **Tesla Cars :35 Rating , price** $678,13.04
* **Top 10 exterior colors in descending order :** 
  + **Black , blue , Burgundy , Gold , Gray , Green , Red , Sliver , White , other**
* **Top 10 interior colors in descending order :**
  + **Black , Gray ,Beige , Tan , Brown , Red , Sliver , off White , Blue , Other**
* **The popular Companies that Sell Cars [ Company Name : Sales over 2014-2015 ] :** 
  + **Ford Motor Credit Company Lic :** $314,344,025
  + **The Hertz Corporation :** $225,025,865
  + **Nissan-Infiniti Lt :** $216,864,210
  + **Nissan Infiniti Lt :** $202,998,571
  + **Avis Corporation :** $185,486,480
  + **Financial Services Remarketing (Lease) :** $ 140,256,800
  + **Mercedes-Benz Financial Services :** $119,301,750
  + **Santander Consumer :** $113,919,490
  + **Enterprise Veh Exchange/Rental :** $105,028,436
* **Best time to Selling Cars :** From Where
  + Months : Feb , Jan , Jun , Mar , May
  + Days : Wed , Tue , Thu , Fri
  + Quarters : Q1 , Q2
  + Day Of month : 4 , 3 , 18 , 27 , 17 , 10 , 11
  + Time interval : 1:00 AM to 12:00 AM

**Business Solutions :**

* **What are the most popular cars among consumers, and which cars have received negative feedback? And why ?**
  + **Popular cars are** :  **\* cars have negative feedback :**
  + **Bottom Cars that are less sales between 2014 and 2015 - in ascending Orders :** **Daewoo** ( 900 $) , **Geo** (9255 $) , **Lotus**(40,800 $) , **Plymouth** (189,525 $) ,**Oldsmobile** (300,400 $) , **Isuzu** (309,975 $) , **Lamborghini** ($334,500 ) , **Fisker** (418,150 $), **Aston Martin** ($1,332,000 )
  + **Why these cars have low Sales ? some of cars with low year model or is very old so most of cars that are made from 1990 to 2005 are so old and have low Sales , Customers not like Manual cars , many cars have good Price but it have bad Bodies or Colors and these are not good for customers so they ignore them , customers also like cars with Good Trims Not bad Ones**
  + **Most Cars have Rating Score with : [33 – 37 ] , [ 41 – 45 ] , [ 25 , 29 ] , [37 – 41 ] , [17 – 21 ]**
  + Most of cars are selling in wrong time where the better time to sell cars are from 1:00 AM to 12:00PM and in months like :Apr and July
* **How have sales trends evolved over the years, and what patterns can be observed on a monthly, quarterly?** 
  + **in Years :** 
    - **** 2015 are so higher than 2014
  + **in months :**
    - the good months : Feb , Jan , Jun
    - Bad Months or not likeable : Apr , July
  + **In Quarters : should Exceed $ 1,000,000,000** 
    - ****Good Quarters : Q1 , Q2
    - Bad Quarters : Q3 , Q4
  + **In Days of Months :**
    - **Target of Good Day of Month** **should Exceed $ 200,000,000**
    - **Good Days :** in descending Order: [ 3 ,4 , 5 , 10 , 11 , 17 , 18 , 19 , 21 , 26 , 27 , 28 ] and the popular ones are : 4 , 3 , 18 , 27 , 17
    - **Bad Days :** other days as it didn't exceed the Target and it have low Sales
  + **In Day of Week :**
    - Target Of Good Day of Weeks should Exceed $1,000,000,000
    - Good Days : Wed , Tue , Thu , specifically Wed
    - Bad Days : it should avoid selling cars in Days like : Sat, sun and other days
  + **In Time :** 
    - **Good Time should exceed or have target $ 100,000,000 :**
    - **Times : from** 1:00AM to 12:00PM are good for selling Cars
* **Which branches consistently perform well in terms of sales, and which branches are underperforming?** 
  + **Top 10 Branches in terms of Sales :**
    - **FL**: Florida – Sales: $1,064,721,466
    - **CA**: California – Sales: $969,473,261
    - **TX**: Texas – Sales: $553,609,484
    - **GA**: Georgia – Sales: $389,775,154
    - **PA**: Pennsylvania – Sales: $334,666,914
    - **IL**: Illinois – Sales: $328,953,270
    - **TN**: Tennessee – Sales: $321,849,238
    - **NJ**: New Jersey – Sales: $311,993,305
    - **OH**: Ohio – Sales: $288,745,254
    - **MO**: Missouri – Sales: $221,419,523
  + **The Branches That underperforming :**
    - Nevada, North Carolina, Wisconsin, Minnesota, Washington, Colorado, Arizona, Virginia, Maryland, New York, Nebraska, Indiana, Massachusetts, South Carolina, Puerto Rico, Utah, Mississippi, Louisiana, Hawaii, Oregon, New Mexico, Oklahoma, Alabama.
* **What are the key preferences and characteristics of customers who purchase cars?**
  + **Customer prefer Cars with These Characteristics from Where :**
  + **Cars :** Ford , Chevrolet , Nissan , Toyota , BMW , Dodge , Honda , Mercedes-Benz , Infiniti
  + **Bodies:** Sedan , SUV , Crew Cab , Coupe , Minivan , Hatchback , Super crew , Convertible , Wagon , G Sedan
  + **Models :** F-150, Altima, Escape, Fusion, G Sedan, Camry, Explorer, 3 Series, Edge, Silverado 1500
  + **Sellers:** Ford Motor Credit Company Lic **&** The Hertz Corporation **&** Nissan-Infiniti Lt **&** Nissan Infiniti Lt **&** Avis Corporation **&** Financial Services Remarketing (Lease) **&** Mercedes-Benz Financial Services **&** Santander Consumer **&** Enterprise Veh Exchange/Rental
  + **Trims:** Base **,** SE **,** Limited **,** XLT **,**  LT **,** LX **,** SEL **,** S  **,** LE **,**Touring
  + **Exterior Colors :** Black , blue , Burgundy , Gold , Gray , Green , Red , Sliver , White , other
  + **Interior Colors:** Black , Gray ,Beige , Tan , Brown , Red , Sliver , off White , Blue , Other
  + **Transmission:** Automatic
  + **Cars that have Odometers :** in range [ 1 – 28000 ] km where the Common one is have 1 or 10
  + **Sales Price : most of customer that buy from us prefer cars that it price not exceed $ 30,000**
  + **Models' year:** 2010 – 2015 **or** mean modern cars
* **Can you develop a forecasting model to predict whether our revenue will increase or decrease in the future?**
  + **So after make a forecast model by using Excel we expect our sales after 2 years :**
    - **2016 :** sales will be $ 842,605,977
    - **2017 :** sales will be$ 884,547,184
* **Can you perform customer segmentation analysis and identify which customer categories we should target for marketing efforts?**
  + We can make segment for customers based on States , year model , Sellers
  + So based on : 3 I found the same results where it show:
    - About 40% Customers at risk where they maybe will left company
    - About 20% Customers are normal ones
    - About 30% Customers are Loyal Customers
    - About 10% Customers Top customers mean they like our product and buy all time from us it more loyal for company
  + So we need to Target 30% Customer Loyal and 40% customers where should give them more attention to convert them into loyal or more than loyal
* **What would be the most effective times and locations for promotional campaigns to attract customers?**
  + **Locations :** FL: Florida, CA: California, TX: Texas, GA: Georgia, PA: Pennsylvania, IL: Illinois, TN: Tennessee, NJ: New Jersey, OH: Ohio, MO: Missouri
  + **Time : 1:00AM to 11:00AM**
* **Can you create a comprehensive report with recommendations on how to boost our sales, identify branches that require additional inventory, and determine if any branches should be considered for closure?**
  + **In report for my manager :**
  + **To boost our sales** we need to focus on cars that manufactured early or modern cars like cars are made 2016 or 2015 **or modern**, also focus on **automatic cars** , also provide cars with **good colors like** black and blue , red , white , don't forget good **bodies like** Sedan or SUV **and Trims like** Base , SE , Limited **and models like**  F-150, Altima, Escape, Fusion, G Sedan, Camry , cars that havelowest odometer to be as new to the customers **also we need to focus on time like selling starting from 1:00AM to 11:00AM and in months like Feb , Jan , Jun and in days like** Wed , Tue , Thu **, I mean we need to focus on Q1 and Q2 as it have a lot of attractive from customer , these characteristics must be exist in cars to increase our sales**
  + **The branches that require additional inventory like :** this mean we need to focus on the popular branches like : FL: Florida, CA: California, TX: Texas, GA: Georgia, PA: Pennsylvania, IL: Illinois, TN: Tennessee, NJ: New Jersey, OH: Ohio, MO: Missouri and try to add additional inventory
  + **There are branches should be closed cause of their perform and low Sales :** 
    - AL: Alabama, OK: Oklahoma, NM: New Mexico as it have sum of sales less than or equal to $ $1,000,000 these branches are selling with low thins
  + **What do we need to achieve target monthly $ 1,000,000,000 ?**