Pig and Hive integration using HCatalog

Analysis on Telco dataset:

1) Given an unclean, junk characters included telco dataset, aim to clean this dataset and store in Hive to perform analysis

   To store cleaned dataset into hive, create a table telco in database telco_upx before running the pig script

   Step1: create table telco(customerID String,gender String,SeniorCitizen Int,Partner String,Dependents String,tenure Int,PhoneService String,MultipleLines String,InternetService String,OnlineSecurity String,OnlineBackup String,DeviceProtection String,TechSupport String,StreamingTV String,StreamingMovies String,Contract String,PaperlessBilling String,PaymentMethod String,MonthlyCharges Float,TotalCharges Float,Churn String) row format delimited fields terminated by ',' tblproperties ("skip.header.line.count"="1");

   //create below pig script to clean and store into hive Step 2: $vi clean_and_store_in_hive.pig

   ```
   junk_telco = LOAD '/user/ec2-user/telco_churn_esc.csv' USING org.apache.pig.piggybank.storage.CSVExcelStorage(',', 'NO_MULTILINE', 'NOCHANGE', 'SKIP_INPUT_HEADER');
   cleaned_telco = FOREACH junk_telco GENERATE REPLACE($0,'([^a-zA-Z0-9-.\\s]+)',''),REPLACE($1,'([^a-zA-Z0-9-.\\s]+)',''),REPLACE($2,'([^a-zA-Z0-9-.\\s]+)',''),REPLACE($3,'([^a-zA-Z0-9-.\\s]+)',''),REPLACE($4,'([^a-zA-Z0-9-.\\s]+)',''),REPLACE($5,'([^a-zA-Z0-9-.\\s]+)',''),REPLACE($6,'([^a-zA-Z0-9-.\\s]+)',''),REPLACE($7,'([^a-zA-Z0-9-.\\s]+)',''),REPLACE($8,'([^a-zA-Z0-9-.\\s]+)',''),REPLACE($9,'([^a-zA-Z0-9-.\\s]+)',''),REPLACE($10,'([^a-zA-Z0-9-.\\s]+)',''),REPLACE($11,'([^a-zA-Z0-9-.\\s]+)',''),REPLACE($12,'([^a-zA-Z0-9-.\\s]+)',''),REPLACE($13,'([^a-zA-Z0-9-.\\s]+)',''),REPLACE($14,'([^a-zA-Z0-9-.\\s]+)',''),REPLACE($15,'([^a-zA-Z0-9-.\\s]+)',''),REPLACE($16,'([^a-zA-Z0-9-.\\s]+)',''),REPLACE($17,'([^a-zA-Z0-9-.\\s]+)',''),REPLACE($18,'([^a-zA-Z0-9-
   ```

```
.\\s]+)',''),REPLACE($19,'([^a-zA-Z0-9-.\\s]+)',''),REPLACE($20,'([^a-zA-Z0-
9-.\\s]+)','');
cleaned_telco1 = foreach cleaned_telco generate $0 as customerid,$1
as gender,(int)$2 as seniorcitizen,$3 as partner,$4 as dependents,(int)$5
as tenure,$6 as phoneservice,$7 as multiplelines,$8 as internetservice,
$9 as onlinesecurity,$10 as onlinebackup, $11 as deviceprotection, $12
as techsupport, $13 as streamingtv, $14 as streamingmovies, $15 as
contract, $16 as paperlessbilling, $17 as paymentmethod, (float)$18 as
monthlycharges, (float)$19 as totalcharges, $20 as churn;
STORE cleaned_telco1 INTO 'telco_upx.telco'
USING org.apache.hive.hcatalog.pig.HCatStorer();
//Save and quit from vi editor

//Run the script using below command
$pig -useHCatalog clean_and_store_in_hive.pig
```

2) Perform below analysis in Hue so as to visualize the results

1. How tenure of customers is effecting churn rate

```
select count(churn),tenure from telco_upx.telco where churn == 'Yes' group
by tenure;
```

2. Analyze how online security provided by this company is effecting its churn rate

```
select count(churn),onlinesecurity from telco_upx.telco where churn ==
'Yes' group by onlinesecurity;
```

3. Analyze the effect of senior citizens on churn rate

```
select count(churn),seniorcitizen from telco_upx.telco where churn == 'Yes'
group by seniorcitizen;
```

4. Which gender is more likely to effect churn rate

```
select count(churn),gender from telco_upx.telco where churn == 'Yes' group
by gender;
```

5. How many customers cancelled services offered by this company in the last month

```
select count(churn),churn from telco_upx.telco group by churn;
```

6. Company waives off 10% for 1 year tenure customers, 20% for 2 year tenure customers and so on… 60% for 6 year tenure customers. Calculate the new rates to be paid by these customers

```
select round(tenure/12) as year,monthlycharges,

case when round(tenure/12) = 1 then 0.9*monthlycharges

        when round(tenure/12) = 2 then 0.8*monthlycharges

        when round(tenure/12) = 3 then 0.7*monthlycharges

        when round(tenure/12) = 4 then 0.6*monthlycharges

        when round(tenure/12) = 5 then 0.5*monthlycharges

        when round(tenure/12) >= 6 then 0.4*monthlycharges

        else monthlycharges end as amount_to_be_paid

from telco_upx.telco;
```

7. Statistics of number of customers according to their tenure

```
select round(tenure/12) as year,count(round(tenure/12)) from
telco_upx.telco group by round(tenure/12);
```

8. Analyse how many customers are into paperless billing

```
select paperlessbilling,count(paperlessbilling) from telco_upx.telco group
by paperlessbilling
```

9. Analyze the type of internet service most preferred by senior citizens

```
select COUNT(internetservice),internetservice from telco_upx.telco
where seniorcitizen = 1 group by internetservice
```

10a. Which gender is more likely to watch movies

10b. Which gender is more likely to watch tv

select gender,count(streamingtv) from telco_upx.telco group by gender

select gender,count(streamingmovies) from telco_upx.telco group by gender

11. Analyze the preferred payment method of customers

select count(paymentmethod),paymentmethod from telco_upx.telco group by paymentmethod

12. Analyze the most preferred payment method gender-wise

select paymentmethod,count(paymentmethod) from telco_upx.telco group by gender

13. Analyze the number of customers who are likely to make use of technical support provided by company

select count(techsupport) from telco where techsupport == 'Yes'