Problem Statement –

We have two datasets which are in the form of excel sheets named FAA1.xlsx and FAA2.xlsx. Both of these data sets contain the data about the flight landings. Both datasets have little variance.

Our problem statement is to study the factors which impact the landing conditions of a commercial flight with the 950 records of data.

The given data and conditions are as follows –

FAA1 has 8 variables with total data count of 801 rows.

The variables are -

Aircraft, duration, no_pasg, speed_ground, speed_air, height, pitch, distance

FAA2 has 7 variables with total count of 151 rows.

The variables are –

Aircraft, no_pasg, speed_ground, speed_air, height, pitch, distance

So, when we compare both the datasets, FAA2 has one variable missing.

Variables and its descriptions –

<u>Aircraft</u> – The make of an aircraft (Boeing or Airbus).

<u>Duration (in minutes)</u> – Flight duration between taking off and landing. The duration of a normal flight should always be greater than 40min.

<u>No_pasg</u> – The number of passengers in a flight.

<u>Speed_ground (in miles per hour)</u> – The ground speed of an aircraft when passing over the threshold of the runway. If its value is less than 30MPH or greater than 140MPH, then the landing would be considered as abnormal.

<u>Speed_air (in miles per hour)</u> – The air speed of an aircraft when passing over the threshold of the runway. If its value is less than 30MPH or greater than 140MPH, then the landing would be considered as abnormal.

<u>Height (in meters)</u> – The height of an aircraft when it is passing over the threshold of the runway. The landing aircraft is required to be at least 6 meters high at the threshold of the runway.

<u>Pitch (in degrees)</u> – Pitch angle of an aircraft when it is passing over the threshold of the runway.

<u>Distance (in feet)</u> – The landing distance of an aircraft. More specifically, it refers to the distance between the threshold of the runway and the point where the aircraft can be fully stopped. The length of the airport runway is typically less than 6000 feet.

Data Preparation and Cleaning -

Step 1 –

We will import both the datasets in SAS.

```
proc import out=faa1 datafile='/folders/myfolders/ecprg193/FAA1.xls'
dbms = xls replace;
   getnames = yes;
run;

proc import out=faa2 datafile='/folders/myfolders/ecprg193/FAA2.xls'
dbms = xls replace;
   getnames = yes;
run;
```

Analysis on first glance is as follows –

1) Duration column in dataset faa2 is not present.

2) The first 101 datasets of faa2 are same as that of faa1 except for the duration column.

```
proc means data=faa1 n nmiss mean median std skew min max;
title 'faa1';
run;
```

The below table shows the characteristics of the FAA1 -

faa1

The MEANS Procedure

Variable	Label	N	N Miss	Mean	Median	Std Dev	Skewness	Minimum	Maximum
duration	duration	800	0	154.0065385	153.9480975	49.2592338	0.1214794	14.7642071	305.6217107
no_pasg	no_pasg	800	0	60.1325000	60.0000000	7.5271686	-0.0270744	29.0000000	87.0000000
speed_ground	speed_ground	800	0	79.5414195	79.6428041	19.2348870	0.1174102	27.7357153	141.2186354
speed_air	speed_air	200	600	103.8294713	100.9933978	10.4118729	1.0384782	90.0028586	141.7249357
height	height	800	0	30.1217717	30.1467453	10.2761691	-0.1168804	-3.5462524	59.9459639
pitch	pitch	800	0	4.0183751	4.0200665	0.5248160	-0.0200692	2.2844801	5.9267842
distance	distance	800	0	1544.52	1267.44	938.2330999	1.6226419	34.0807833	6533.05

```
proc means data=faa2 n nmiss mean median std skew min max;
title 'faa2';
run;
```

The below table shows the characteristics of the FAA2 -

faa2

The MEANS Procedure

Variable	Label	N	N Miss	Mean	Median	Std Dev	Skewness	Minimum	Maximum
no_pasg	no_pasg	150	50	60.3400000	60.5000000	7.3107717	0.0349586	44.0000000	78.0000000
speed_ground	speed_ground	150	50	77.9173910	76.5308198	19.8788997	0.3291706	29.2276564	141.2186354
speed_air	speed_air	39	161	103.2224489	100.2606698	11.6781942	1.4232817	90.1110133	141.7249357
height	height	150	50	30.2326030	29.2596657	10.8272955	-0.0304723	-3.5462524	58.0835448
pitch	pitch	150	50	4.0238987	3.9877143	0.5342237	0.2921878	2.6689057	5.5563992
distance	distance	150	50	1571.77	1271.99	1005.55	1.9758644	425.8585610	6533.05

The above data can be used to show that –

1) All the variables except distance has a normal distribution as we can see that the mean and median are nearly equal for both data sets.
2) First data set has 600 missing values for speed_air variable.
3) Similarly, there are missing values for each variable in faa2 dataset.
4) The minimum and maximum for the variables are comparable in both the data sets, so should not contribute to a big change after combining.

Step 2 –

We will combine records from both the datasets.

```
data combined_faa;
set faa1 faa2;

data combined_faa;
set combined_faa;
if missing(coalesceC(of _character_)) then delete;
run;
```

After this we get 950 rows of data in a new data set named combined_faa.

Step 3 –

After combining, we will remove all the duplicate fields from the combined dataset.

We had 100 rows of data in faa2 which had same data as in faa1. So, those should be removed as duplicates.

```
proc sort data=combined_faa nodupkey;
by aircraft no_pasg speed_ground speed_air height pitch distance;
run;
```

After this step, we are left with 850 rows of data.

Step 4 –

Now we have been provided with conditions where the data is abnormal. So, we should preferably remove those records before analyzing.

The conditions mentioned are as follows –

Duration (in minutes): Flight duration between taking off and landing. The duration of a normal flight should always be greater than 40min.

Speed_ground (in miles per hour): The ground speed of an aircraft when passing over the threshold of the runway. If its value is less than 30MPH or greater than 140MPH, then the landing would be considered as abnormal.

Speed_air (in miles per hour): The air speed of an aircraft when passing over the threshold of the runway. If its value is less than 30MPH or greater than 140MPH, then the landing would be considered as abnormal.

Height (in meters): The height of an aircraft when it is passing over the threshold of the runway. The landing aircraft is required to be at least 6 meters high at the threshold of the runway.

Distance (in feet): The landing distance of an aircraft. More specifically, it refers to the distance between the threshold of the runway and the point where the aircraft can be fully stopped. The length of the airport runway is typically less than 6000 feet.

Abnormal conditions –

Duration<40min

140 MPH < Speed_ground < 30 MPH

140 MPH < Speed_air < 30 MPH

Height < 6 meters

Distance > 6000 feet

We should remove all the records with the above abnormal conditions.

We will create three groups which will be –
0 – Abnormal Values
1 – Missing Values
2 – Normal Values

```
data combined_faa_v1;
set combined_faa;
if speed_ground=. or speed_air=. or height=. then  group=1;
 else group=2;
 if speed_ground ne . and (speed_ground lt 30.0 or speed_ground gt 140.0)  then
group=0;
 if speed_air ne . and (speed_air lt 30.0 or speed_air gt 140.0) then group=0;
 if height ne . and height<6 then group=0;
 if distance ne . and distance > 6000 then group=0;
run;
```

Now we will create a new dataset combined_faa_v2 which will not have abnormal values. Deleting the abnormal values by removing group 0 values.

```
data combined_faa_v2;
set combined_faa_v1;
if group=0 then delete;
else output combined_faa_v2;
run;
```

Now we are left with 836 rows of data with 8 variables.

Step 5 –

Let us analyze the data available after we removed the abnormal values –

abnormal values removed

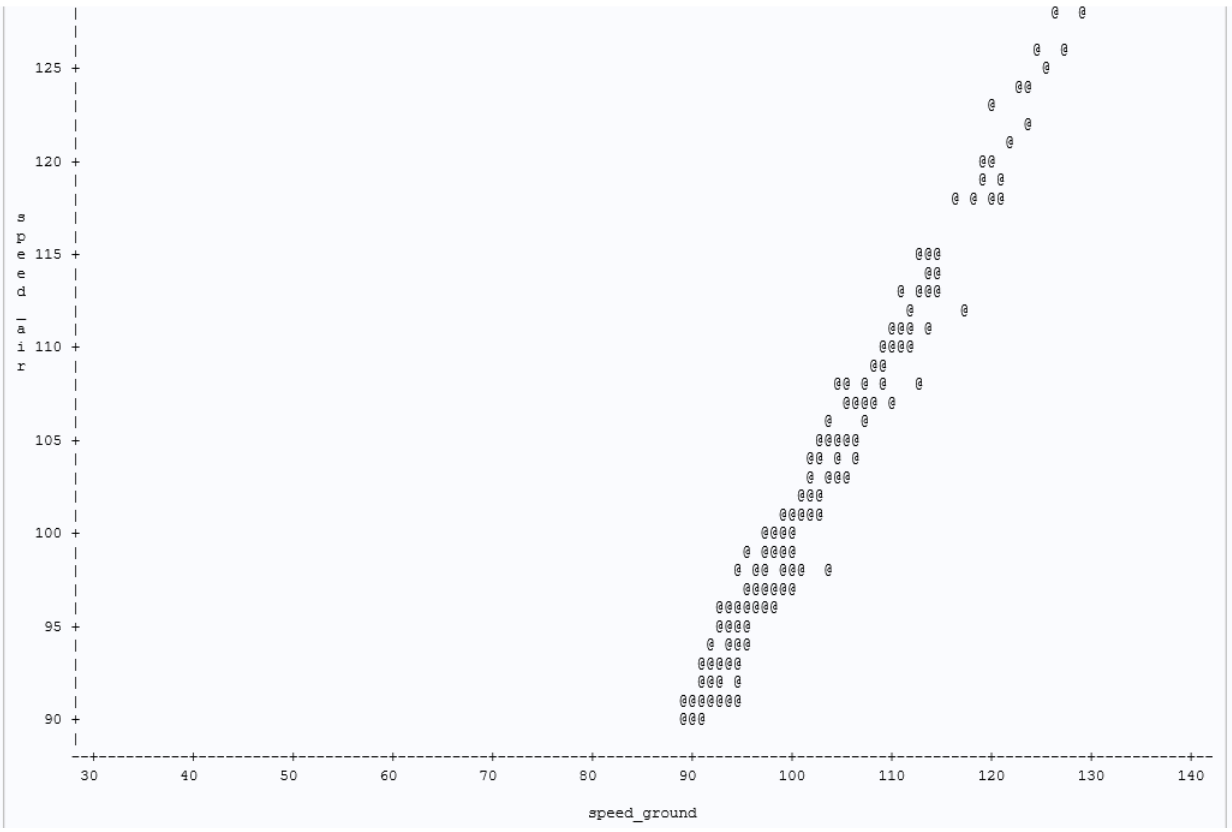
The MEANS Procedure

Variable	Label	N Miss	N	Mean	Std Dev	Minimum	Maximum	Median
duration	duration	50	786	153.9337944	49.3360402	14.7642071	305.6217107	154.1281058
no_pasg	no_pasg	0	836	60.0406699	7.4792021	29.0000000	87.0000000	60.0000000
speed_ground	speed_ground	0	836	79.5944146	18.7327127	33.5741041	132.7846766	79.8275813
speed_air	speed_air	630	206	103.4552338	9.6926499	90.0028586	132.9114649	101.1070213
height	height	0	836	30.5104883	9.8049102	6.2275178	59.9459639	30.2095636
pitch	pitch	0	836	4.0050110	0.5273975	2.2844801	5.9267842	4.0023169
distance	distance	0	836	1526.05	898.4154244	41.7223127	5381.96	1263.54
group		0	836	1.2464115	0.4311789	1.0000000	2.0000000	1.0000000

From the above analysis, we can see that –
1) Duration has 50 missing values.
2) Speed_air has 630 missing values.

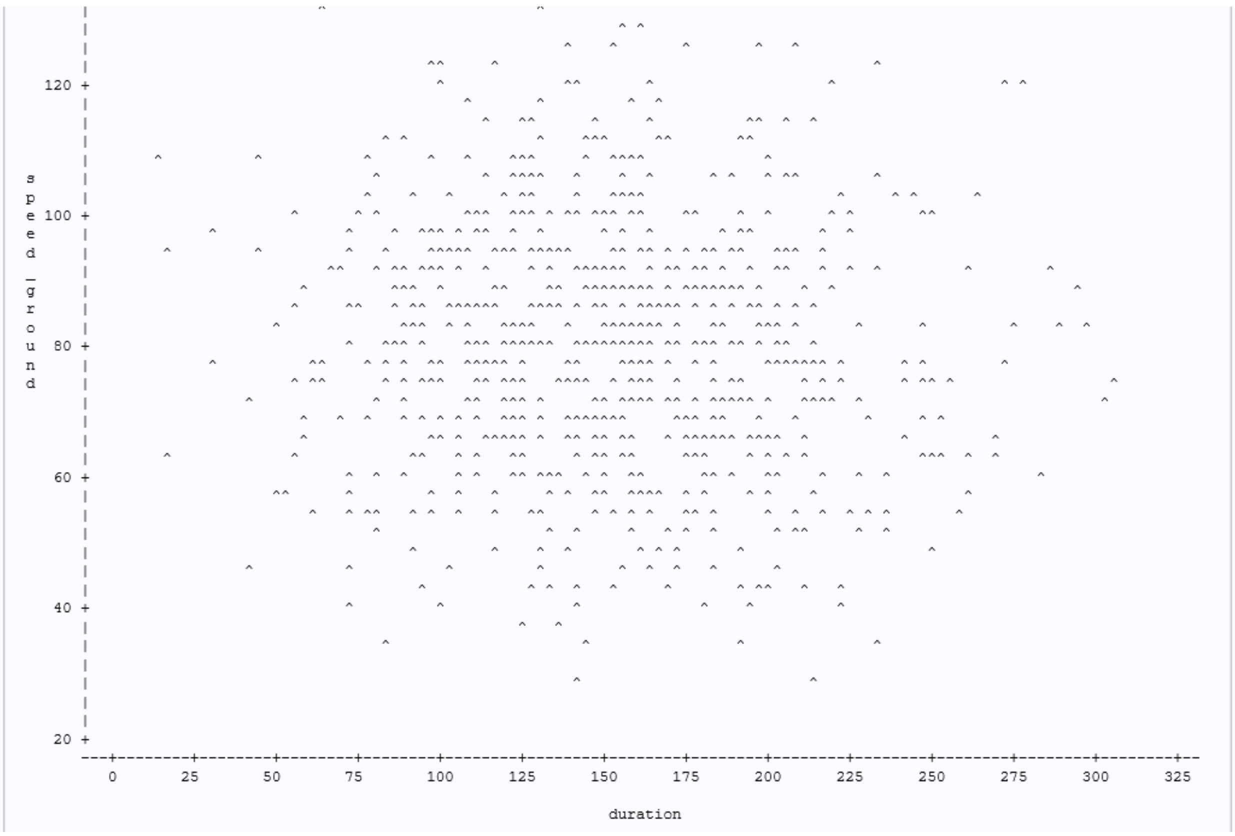
Let us analyze both of these variables.

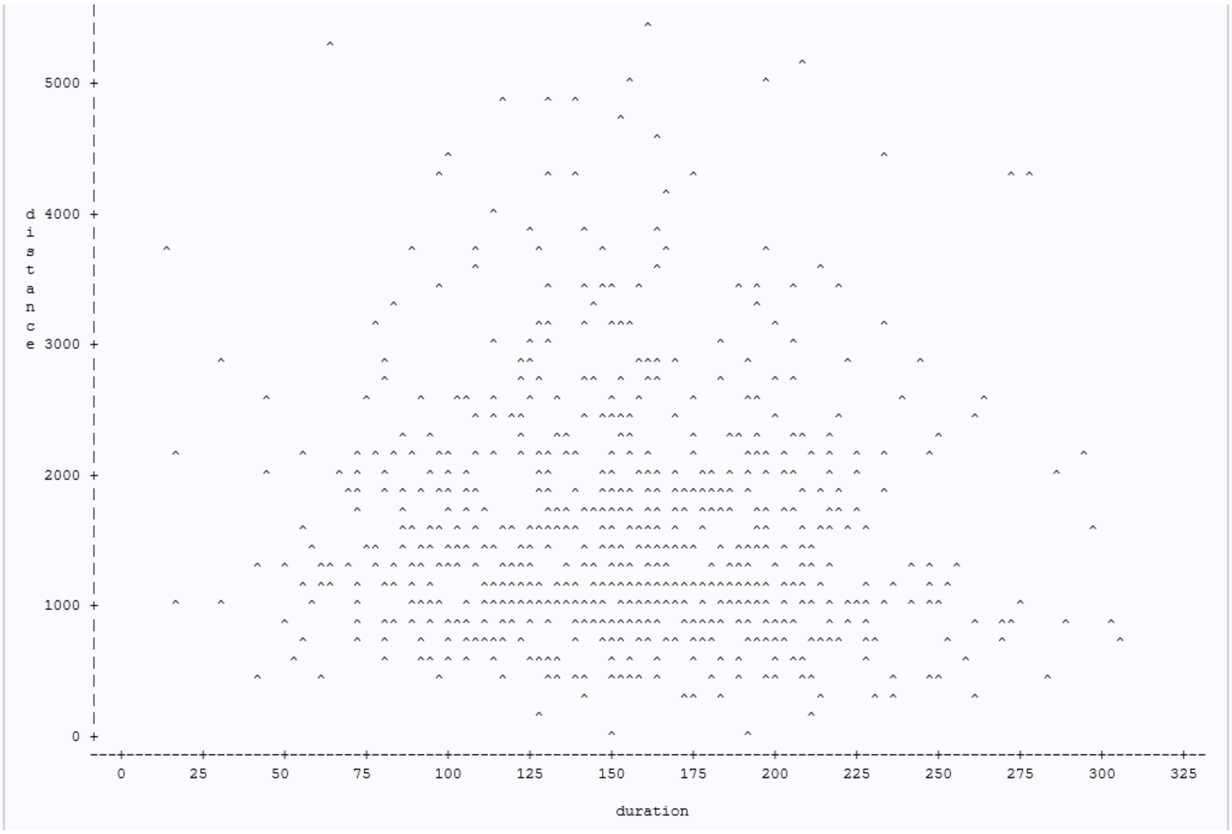
```
proc plot data=combined_faa_v2;
plot speed_air*speed_ground='@';
run;
```



From the above plot, we can see that the speed_ground and speed_air are correlated. So, even if we remove this variable we can do the analysis. Moreover, we have 630 values missing, so it is better to drop the speed_air variable.

```
proc plot data=combined_faa;
plot speed_ground*duration='^';
run;
```





Here we see no relation of duration with speed_ground and distance. We plan to check the correlation.

abnormal values removed

The CORR Procedure

2 Variables:	duration distance

Simple Statistics							
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**	**Label**
duration	786	153.93379	49.33604	120992	14.76421	305.62171	duration
distance	836	1526	898.41542	1275781	41.72231	5382	distance

Pearson Correlation Coefficients
Prob > |r| under H0: Rho=0
Number of Observations

	duration	distance
duration duration	1.00000 786	-0.06107 0.0871 786
distance distance	-0.06107 0.0871 786	1.00000 836

There seems to be no correlation between duration and distance. But as we have only 50 records missing, we plan to move ahead with this variable.

So, after the data preparation and cleaning we have the following dataset-

```
data combined_faa_v3;
set combined_faa_v2;
drop speed_air;
run;
```

This dataset has 836 records.

after data preparation and cleaning

The MEANS Procedure

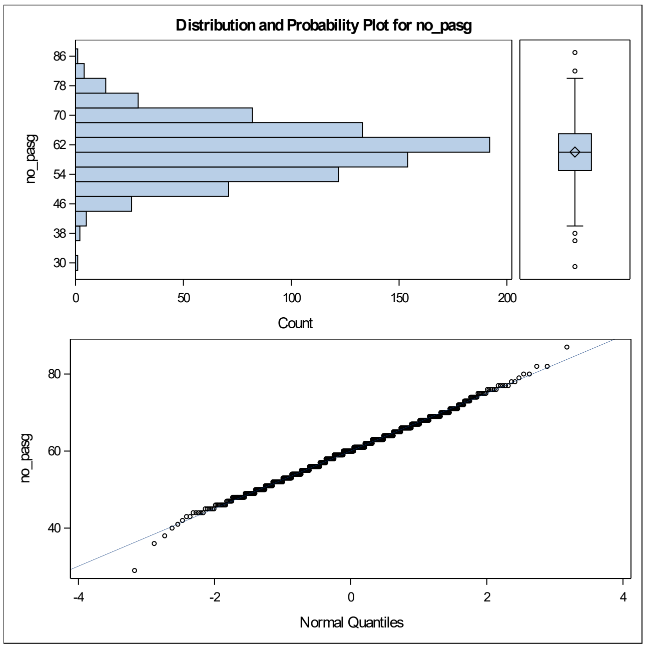
Variable	Label	N Miss	N	Mean	Std Dev	Minimum	Maximum	Median
no_pasg	no_pasg	0	836	60.0406699	7.4792021	29.0000000	87.0000000	60.0000000
speed_ground	speed_ground	0	836	79.5944146	18.7327127	33.5741041	132.7846766	79.8275813
height	height	0	836	30.5104883	9.8049102	6.2275178	59.9459639	30.2095636
pitch	pitch	0	836	4.0050110	0.5273975	2.2844801	5.9267842	4.0023169
distance	distance	0	836	1526.05	898.4154244	41.7223127	5381.96	1263.54
group		0	836	1.2464115	0.4311789	1.0000000	2.0000000	1.0000000

Data Exploration –

In this section, we will try to gain insights from the clean data available to us. We will analyze individual variables and check its relations with other variables.

1)Univariate Analysis –

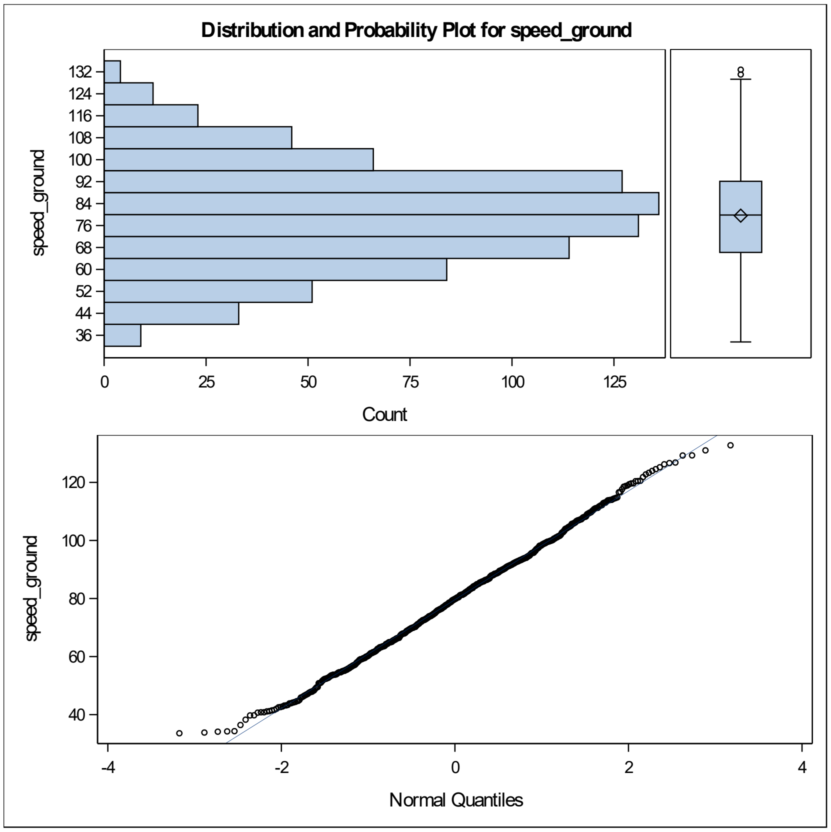
no_pasg -



Moments			
N	836	**Sum Weights**	836
Mean	60.0406699	**Sum Observations**	50194
Std Deviation	7.47920208	**Variance**	55.9384637
Skewness	-0.0103497	**Kurtosis**	0.30478069
Uncorrected SS	3060390	**Corrected SS**	46708.6172
Coeff Variation	12.4568931	**Std Error Mean**	0.25867361

The above table shows us that the variables no_pasg is nearly a normal distribution. The mean, median and mode are nearly equal. We have some outliers but we cannot remove those because it can have an impact on analysis.

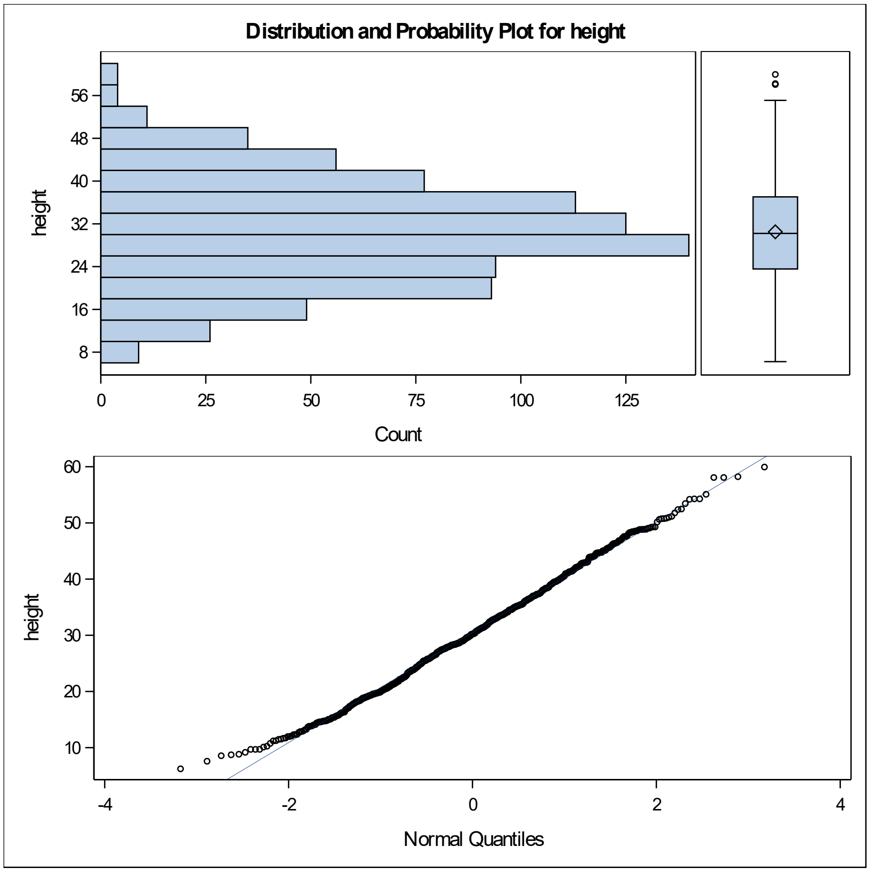
speed_ground –



Moments			
N	836	**Sum Weights**	836
Mean	79.5944146	**Sum Observations**	66540.9306
Std Deviation	18.7327127	**Variance**	350.914524
Skewness	0.08550087	**Kurtosis**	-0.2394114
Uncorrected SS	5589300.05	**Corrected SS**	293013.627
Coeff Variation	23.53521	**Std Error Mean**	0.64788441

This variable also looks nearly normal and the mean, median and mode are nearly equal. Though some outliers are present, we may not remove the outliers.

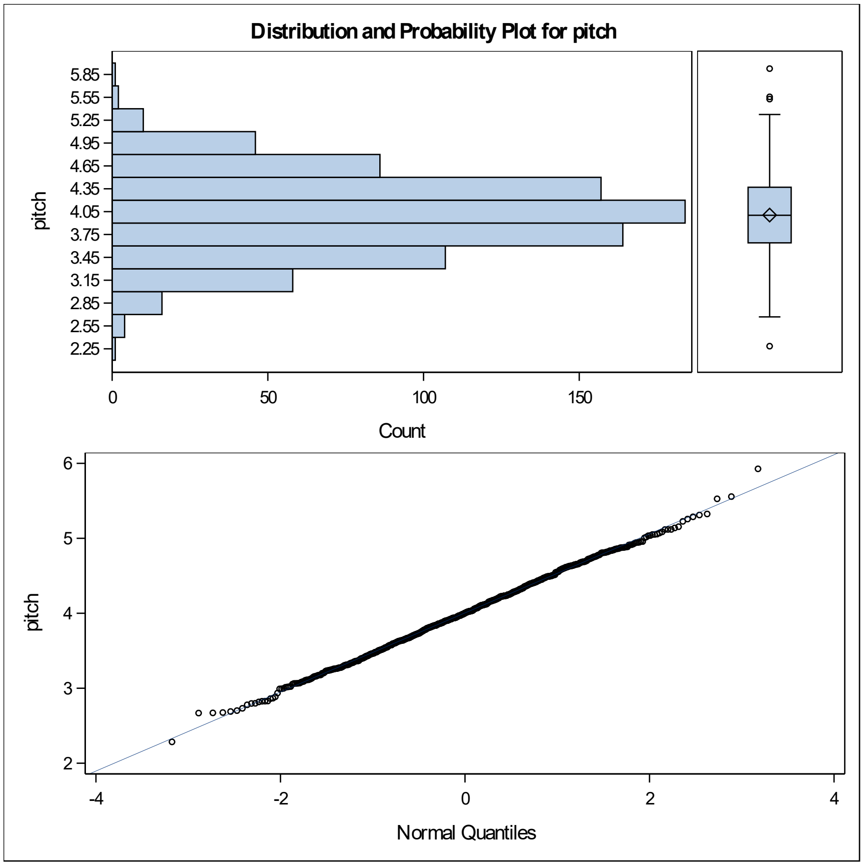
height -



Moments			
N	836	**Sum Weights**	836
Mean	30.5104883	**Sum Observations**	25506.7682
Std Deviation	9.8049102	**Variance**	96.1362641
Skewness	0.12917906	**Kurtosis**	-0.3340755
Uncorrected SS	858497.735	**Corrected SS**	80273.7805
Coeff Variation	32.1361956	**Std Error Mean**	0.33910991

This variable also looks nearly normal and the mean, median and mode are nearly equal. Though some outliers are present, we may not remove the outliers.

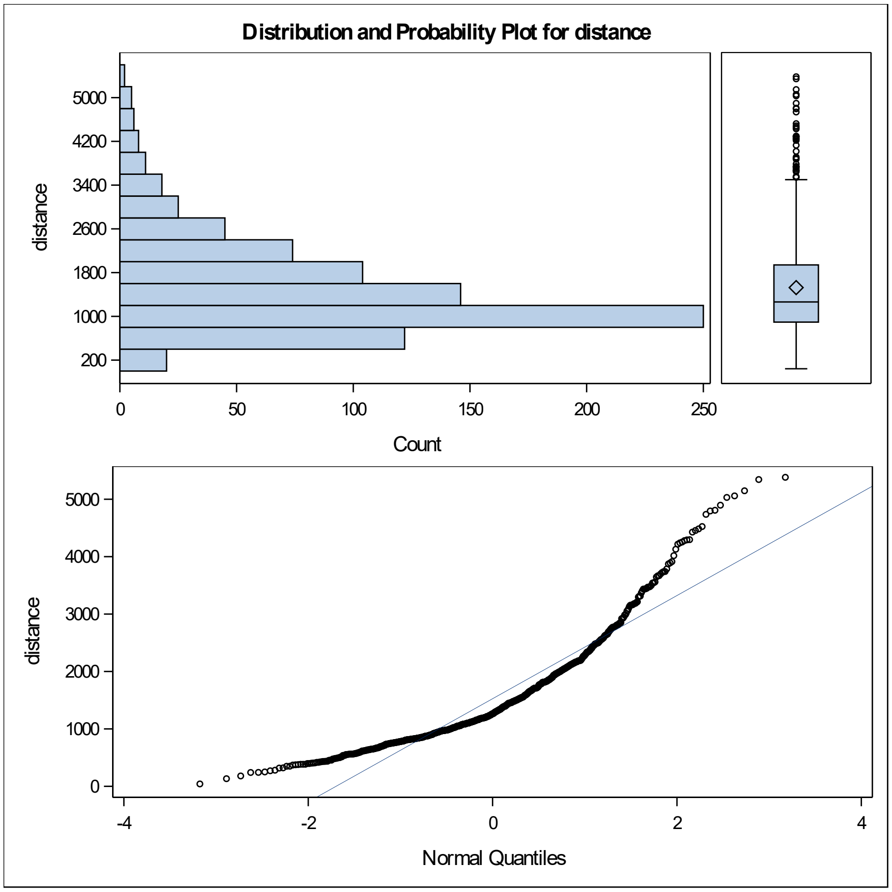
pitch -



Moments			
N	836	**Sum Weights**	836
Mean	4.00501101	**Sum Observations**	3348.1892
Std Deviation	0.52739751	**Variance**	0.27814813
Skewness	0.00858989	**Kurtosis**	-0.0889377
Uncorrected SS	13641.7883	**Corrected SS**	232.253692
Coeff Variation	13.168441	**Std Error Mean**	0.01824042

This variable also looks nearly normal and the mean, median and mode are nearly equal. Though some outliers are present, we may not remove the outliers because it may have some hidden information.

distance -



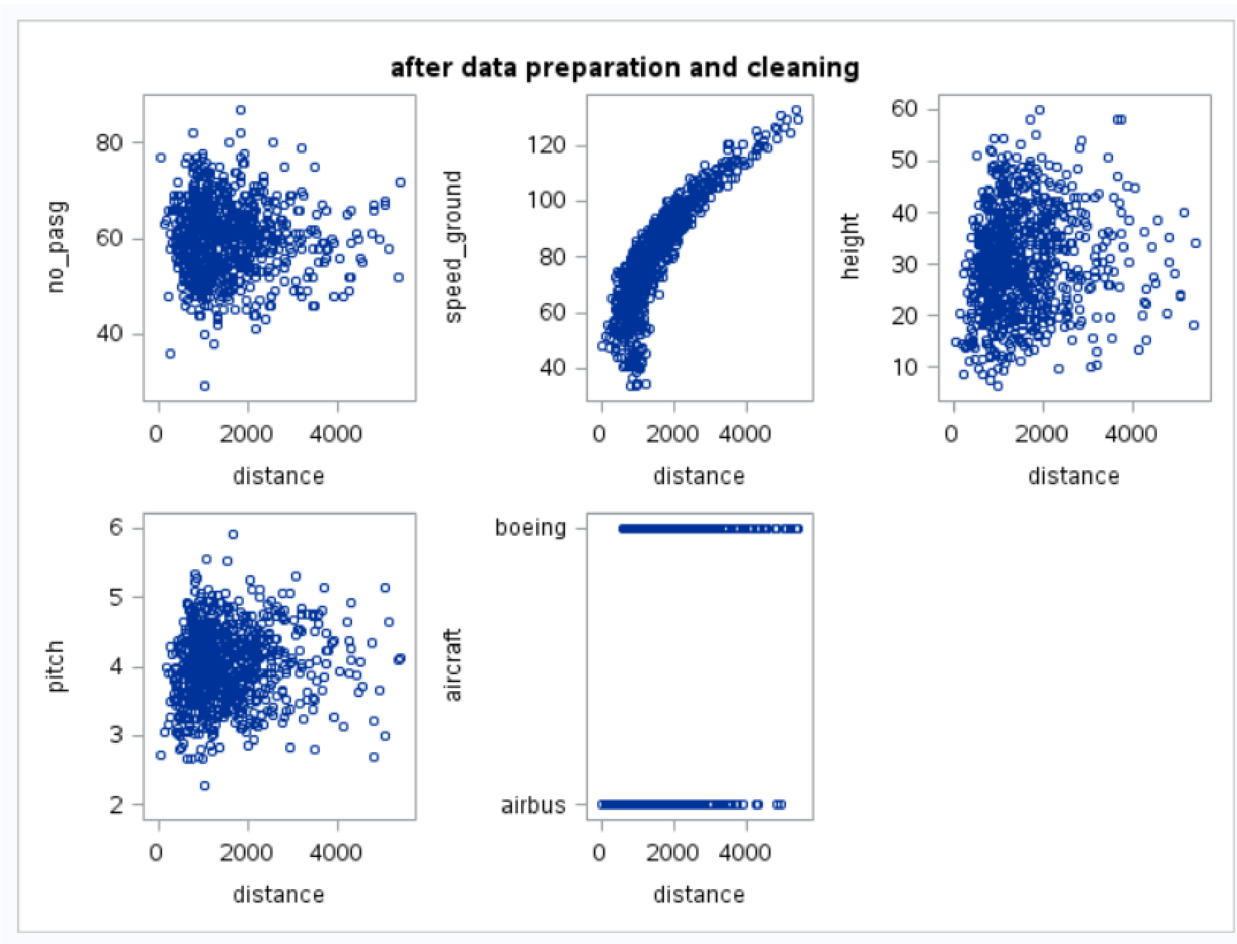
Moments			
N	836	**Sum Weights**	836
Mean	1526.0539	**Sum Observations**	1275781.06
Std Deviation	898.415424	**Variance**	807150.275
Skewness	1.46471488	**Kurtosis**	2.48355071
Uncorrected SS	2620881139	**Corrected SS**	673970479
Coeff Variation	58.8718017	**Std Error Mean**	31.0723472

This is a non-normal distribution which does not have mean, median and mode nearly equal. This can be a lognormal distribution.

2) Bivariate Analysis –

We find the bivariate analysis, which is the relation of one variable with another variable.

```
proc sgscatter data=combined_faa_v3;
plot(no_pasg speed_ground height pitch aircraft)*distance;
run;
```



From this we can see that there is a linear and positive relationship between distance and speed_ground. But if we want to increase the linearity we can try to transform any of the variable. The only variable which is nearly linear is speed_ground, so we should try transformation on that variable.

Before doing that let us check the correlations of present variables.

3) Correlation –

Now we will find the correlation between various variables to check the type of relation between them.

For that first of all we will convert our aircraft to numeric values so that we can find the correlation with distance.

```
data combined_faa_v3;
set combined_faa_v3;
if aircraft="boeing" then aircraft_type=0;
else aircraft_type=1;

proc corr data=combined_faa_v3;
var no_pasg speed_ground height pitch distance aircraft_type;
title Correlation Coefficients;
run;
```

Correlation Coefficients

The CORR Procedure

6 Variables:	no_pasg speed_ground height pitch distance aircraft_type

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
no_pasg	836	60.04067	7.47920	50194	29.00000	87.00000	no_pasg
speed_ground	836	79.59441	18.73271	66541	33.57410	132.78468	speed_ground
height	836	30.51049	9.80491	25507	6.22752	59.94596	height
pitch	836	4.00501	0.52740	3348	2.28448	5.92678	pitch
distance	836	1526	898.41542	1275781	41.72231	5382	distance
aircraft_type	836	0.53349	0.49918	446.00000	0	1.00000	

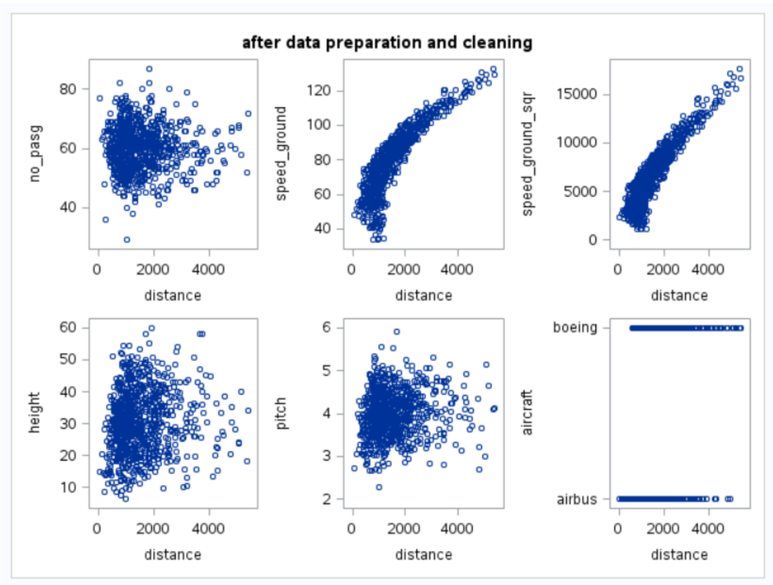
Pearson Correlation Coefficients, N = 836
Prob > |r| under H0: Rho=0

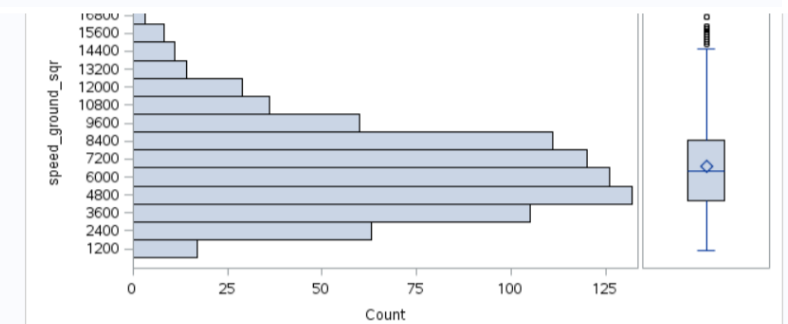
	no_pasg	speed_ground	height	pitch	distance	aircraft_type
no_pasg no_pasg	1.00000	-0.00303 0.9302	0.04237 0.2210	-0.01923 0.5788	-0.02115 0.5414	0.02305 0.5057
speed_ground speed_ground	-0.00303 0.9302	1.00000	-0.05051 0.1445	-0.03478 0.3152	0.86661 <.0001	0.03877 0.2629
height height	0.04237 0.2210	-0.05051 0.1445	1.00000	0.02679 0.4391	0.10767 0.0018	0.01038 0.7645
pitch pitch	-0.01923 0.5788	-0.03478 0.3152	0.02679 0.4391	1.00000	0.09308 0.0071	-0.35582 <.0001
distance distance	-0.02115 0.5414	0.86661 <.0001	0.10767 0.0018	0.09308 0.0071	1.00000	-0.24022 <.0001
aircraft_type	0.02305 0.5057	0.03877 0.2629	0.01038 0.7645	-0.35582 <.0001	-0.24022 <.0001	1.00000

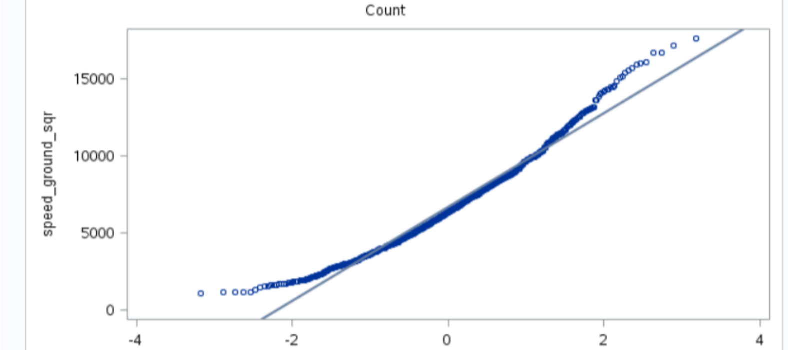
From the above correlation table, we find that the distance is correlated with speed_ground.

Let us now check after transforming our speed_ground variable. We can try to check its square.

```
data combined_faa_v4;
set combined_faa_v3;
speed_ground_sqr = speed_ground**2;
run;
proc sgscatter data=combined_faa_v4;
plot(no_pasg speed_ground speed_ground_sqr height pitch aircraft)*distance;
run;
```







The plot above shows that the square of the speed_ground is more linear that the speed_ground. This should be better when we use for modeling.

Let us also check the correlation coefficients.

```
data combined_faa_v4;
set combined_faa_v4;
if aircraft="boeing" then aircraft_type=0;
else aircraft_type=1;

proc corr data=combined_faa_v4;
var no_pasg speed_ground speed_ground_sqr height pitch distance aircraft_type;
title Correlation Coefficients;
run;
```

The CORR Procedure

7 Variables:	no_pasg speed_ground speed_ground_sqr height pitch distance aircraft_type

Simple Statistics							
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
no_pasg	836	60.04067	7.47920	50194	29.00000	87.00000	no_pasg
speed_ground	836	79.59441	18.73271	66541	33.57410	132.78468	speed_ground
speed_ground_sqr	836	6686	3047	5589300	1127	17632	
height	836	30.51049	9.80491	25507	6.22752	59.94596	height
pitch	836	4.00501	0.52740	3348	2.28448	5.92678	pitch
distance	836	1526	898.41542	1275781	41.72231	5382	distance
aircraft_type	836	0.53349	0.49918	446.00000	0	1.00000	

Pearson Correlation Coefficients, N = 836 Prob > |r| under H0: Rho=0							
	no_pasg	speed_ground	speed_ground_sqr	height	pitch	distance	aircraft_type
no_pasg no_pasg	1.00000	-0.00303 0.9302	-0.00467 0.8928	0.04237 0.2210	-0.01923 0.5788	-0.02115 0.5414	0.02305 0.5057
speed_ground speed_ground	-0.00303 0.9302	1.00000	0.98836 <.0001	-0.05051 0.1445	-0.03478 0.3152	0.86661 <.0001	0.03877 0.2629
speed_ground_sqr	-0.00467 0.8928	0.98836 <.0001	1.00000	-0.04696 0.1749	-0.02424 0.4839	0.91670 <.0001	0.01546 0.6553
height height	0.04237 0.2210	-0.05051 0.1445	-0.04696 0.1749	1.00000	0.02679 0.4391	0.10767 0.0018	0.01038 0.7645
pitch pitch	-0.01923 0.5788	-0.03478 0.3152	-0.02424 0.4839	0.02679 0.4391	1.00000	0.09308 0.0071	-0.35582 <.0001
distance distance	-0.02115 0.5414	0.86661 <.0001	0.91670 <.0001	0.10767 0.0018	0.09308 0.0071	1.00000	-0.24022 <.0001
aircraft_type	0.02305 0.5057	0.03877 0.2629	0.01546 0.6553	0.01038 0.7645	-0.35582 <.0001	-0.24022 <.0001	1.00000

Now when we compare the values of correlation of speed_ground and speed_ground_sqr, the value is greater for speed_ground_sqr.

Modeling –

We will build a model which we can be used to show the dependence of the response variable on the independent variables. We are trying to find a model which can show the variation of distance based on other variables.

Linear regression is a type of analysis which tries to find if one or more variable can represent a dependent variable.

The prerequisites of linear regression are –

- Linear relationship
- Multivariate normality
- No or little multicollinearity
- No auto-correlation
- Homoscedasticity

We can either transform the predictor or response variable. We choose to transform the predictor.
We can achieve a high value of R square if we consider both speed_ground and speed_ground_sqr.
But, as we consider the above prerequisites, we need no or little multicollinearity, so we need to remove one among the speed_ground and speed_ground_sqr. And as speed_ground_sqr has more linear relationship, we prefer this variable.

```
proc reg data=combined_faa_v4;
model distance = no_pasg speed_ground_sqr height pitch aircraft_type/r spec;
output out=faa_regression r=residual;
run;
```

Correlation Coefficients

The REG Procedure
Model: MODEL1
Dependent Variable: distance distance

Number of Observations Read	836
Number of Observations Used	836

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	5	626438367	125287673	2187.76	<.0001
Error	830	47532113	57268		
Corrected Total	835	673970479			

Root MSE	239.30651	R-Square	0.9295
Dependent Mean	1526.05390	Adj R-Sq	0.9290
Coeff Var	15.68139		

Parameter Estimates						
Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	-529.37037	102.47574	-5.17	<.0001
no_pasg	no_pasg	1	-2.06482	1.10866	-1.86	0.0629
speed_ground_sqr		1	0.27365	0.00272	100.56	<.0001
height	height	1	14.10606	0.84680	16.66	<.0001
pitch	pitch	1	39.23883	16.81561	2.33	0.0199
aircraft_type		1	-445.59212	17.75930	-25.09	<.0001

We see that the value of R square is 0.9295, looking at which we can say that the model fits the equation.

To create an equation, we check the p values of the variables. If the value of p is greater than .05 we drop the variable or else, we keep it.

Creating the equation -

Y = b0 + b1X1 + b2X2 + E

Y = Distance

B0 = -529.37

B1 = -445.59

X1 = aircraft_type

B2 = 0.2736

X2 = speed_ground_sqr

B3 = 14.106

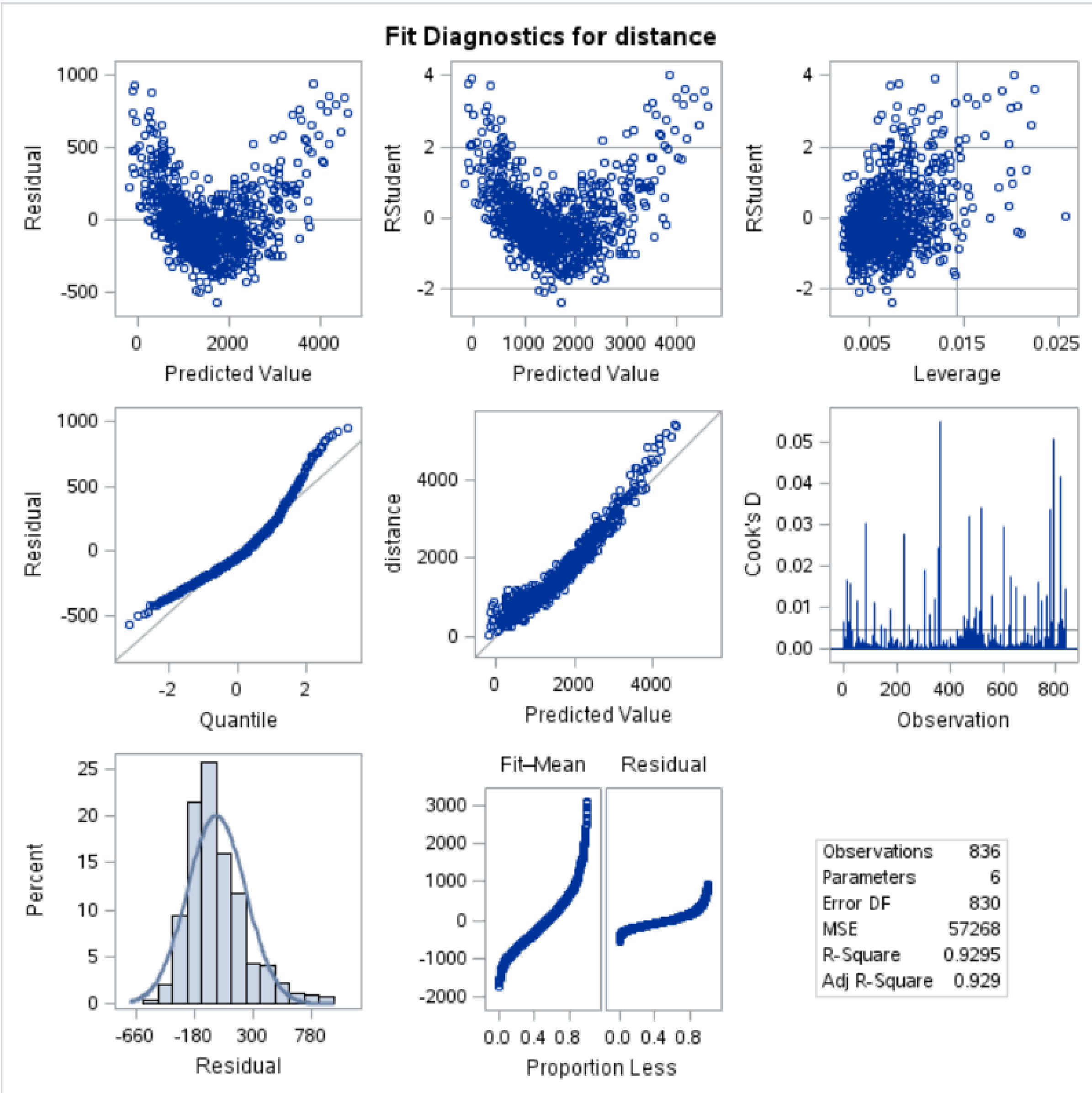
X3 = height

B4 = 39.23

X4 = pitch

Distance = -529.37 -445.59(aircraft_type) + 0.2736(speed_ground_sqr) + 14.106(height) + 39.23(pitch)

Sum of Residuals	0
Sum of Squared Residuals	47532113
Predicted Residual SS (PRESS)	48456191



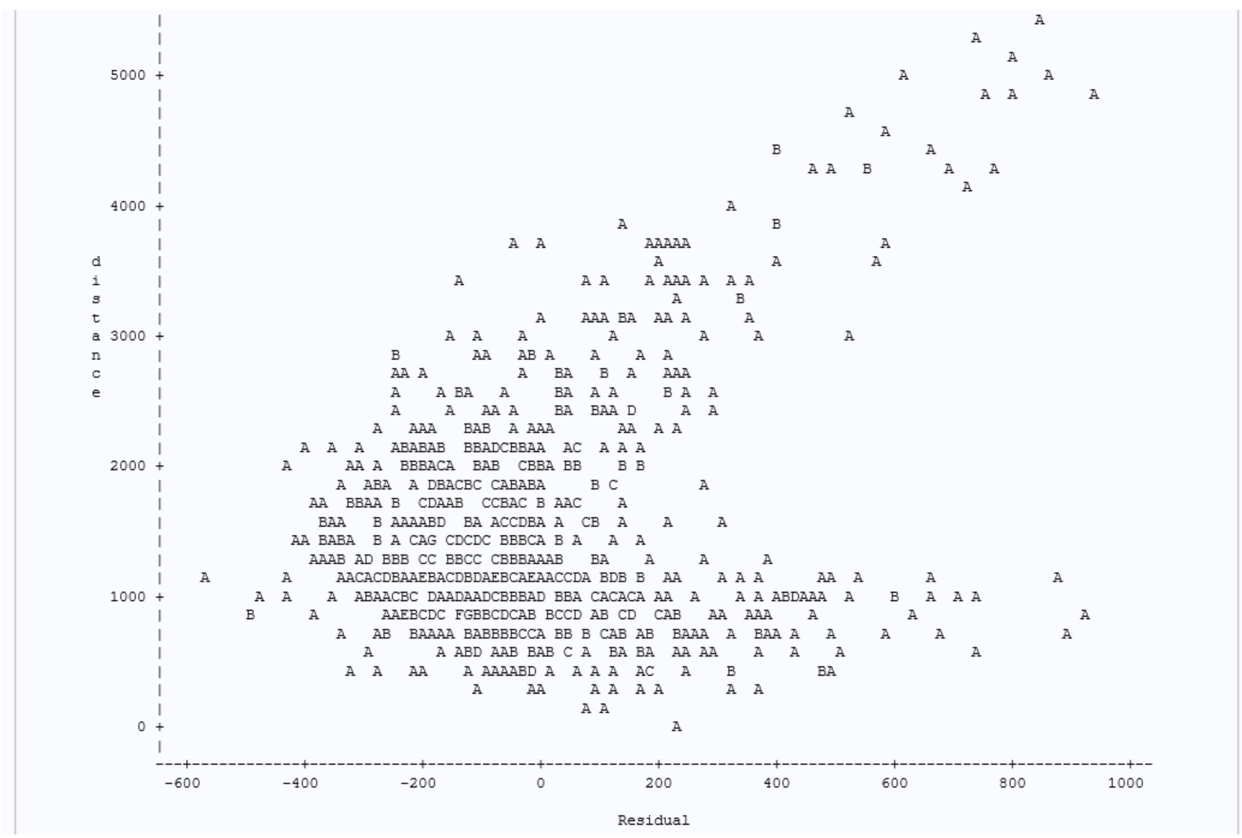
Model Checking –

In model checking we will have following criteria –

- Independent
- Normally Distributed
- Mean 0
- Constant Variance

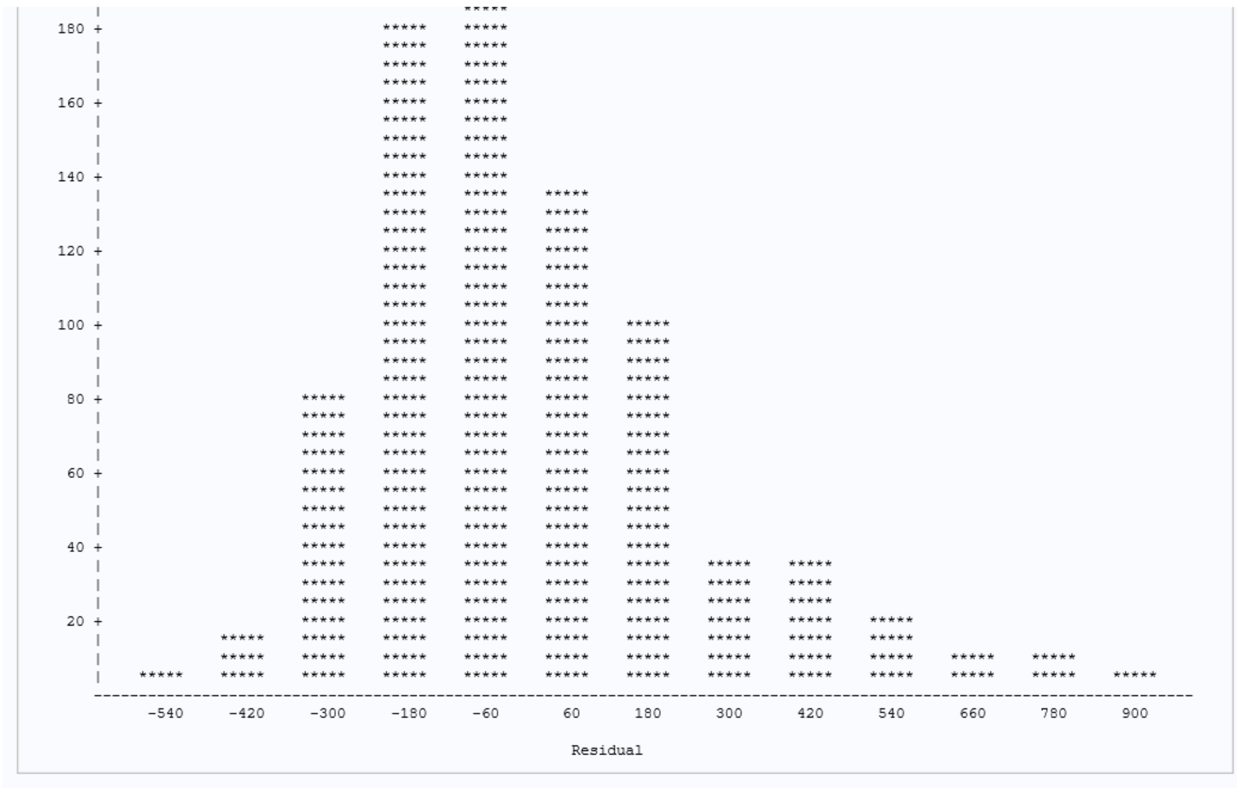
Independent –

```
proc plot data=faa_regression;
plot distance*residual;
run;
```



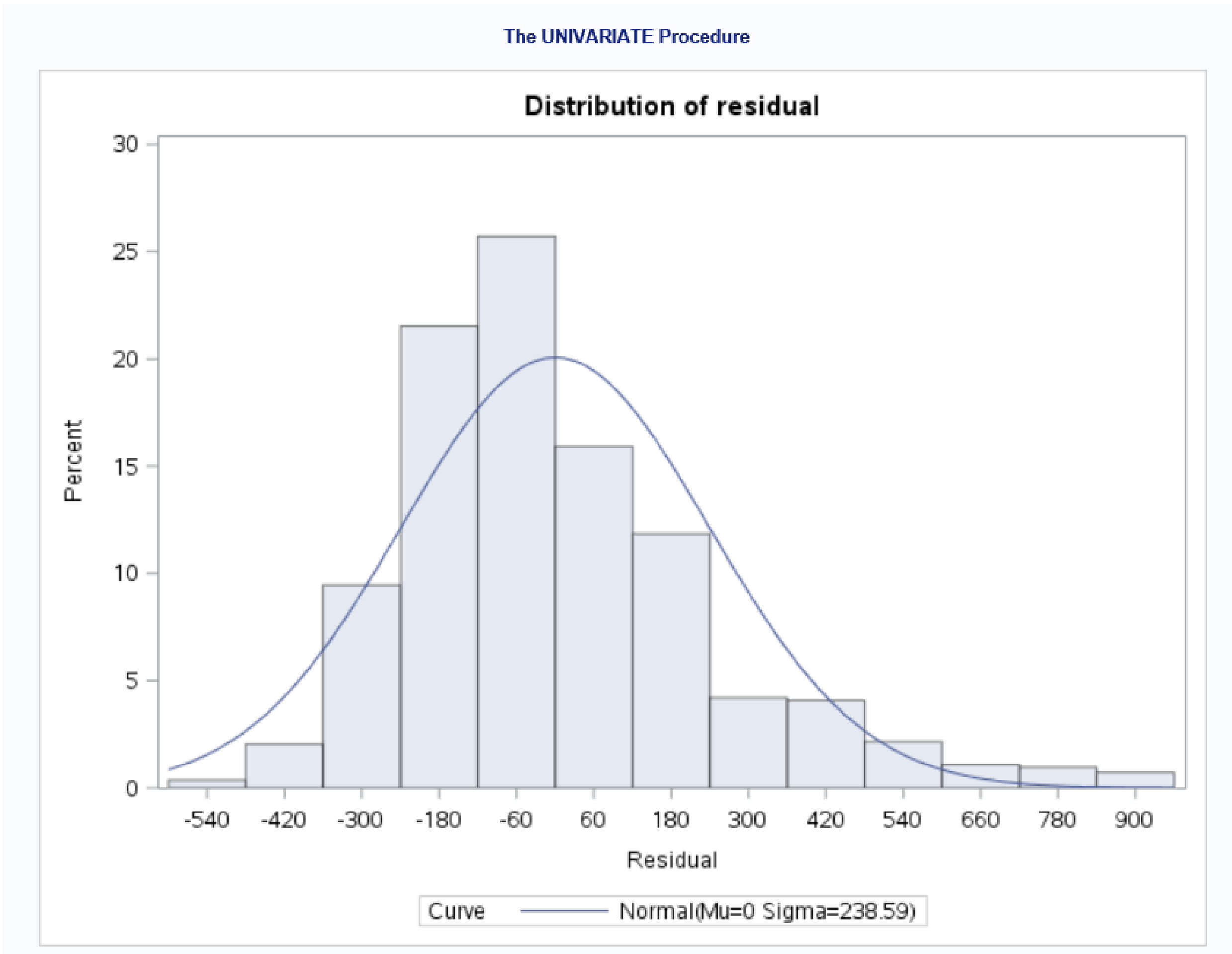
Normally distributed –

```
proc univariate data=faa_regression;
histogram/normal;
var residual;
run;
```



Mean 0 –

```
proc chart data=faa_regression;
vbar residual;
run;
```



1. How many observations (flights) do you use to fit your final model? If not all 950 flights, why?

   I have fit 836 observations in the final model. In my views, all the 950 observations were not eligible for a model because of the following reasons –

   1) 100 observations from FAA2 were exactly duplicate of the observations from FAA1, but FAA2 had duration column missing. But, as I have dropped the duration column, those 100 observations have become exact replicas. So, it is preferred to remove those duplicates. After this we are left with 850 observations.
   2) We also remove the abnormal values which are mentioned in problem statement. After removing those, we are left with 836 observations.

2. What factors and how they impact the landing distance of a flight?

   After modelling, we are left with this equation

   Distance = -529.37 - 445.59(aircraft_type) + 0.2736(speed_ground_sqr) + 14.106(height) + 39.23(pitch)

   Above equation shows that the distance is impacted by four variables.

   The other variables like no_pasg, duration, speed_air did not have a strong correlation like the other four variables. So, we removed these and kept the others.

3. Is there any difference between the two makes Boeing and Airbus?

   Yes, there is a difference in both the makes of aircraft. If we analyze the response variable against the aircrafts, we can see the difference.

   ```
   proc ttest data=combined_faa_v4;
   var distance;
   class aircraft_type;
   run;
   ```

   The mean and median of distance for Boeing is greater than that of Airbus.
   The minimum and maximum are also very different.

The TTEST Procedure
Variable: distance (distance)

aircraft_type	N	Mean	Std Dev	Std Err	Minimum	Maximum
0	390	1756.7	957.2	48.4691	573.6	5382.0
1	446	1324.4	791.3	37.4714	41.7223	4896.3
Diff (1-2)		432.4	872.6	60.4970		

aircraft_type	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
0		1756.7	1661.4	1852.0	957.2	894.4	1029.5
1		1324.4	1250.7	1398.0	791.3	742.6	847.0
Diff (1-2)	Pooled	432.4	313.6	551.1	872.6	832.7	916.6
Diff (1-2)	Satterthwaite	432.4	312.1	552.6			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	834	7.15	<.0001
Satterthwaite	Unequal	756.67	7.06	<.0001

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	389	445	1.46	0.0001