In [1]:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
%matplotlib inline
```

In [2]:

```
df=pd.read_csv('after_week1.csv')
df.head()
```

Out[2]:

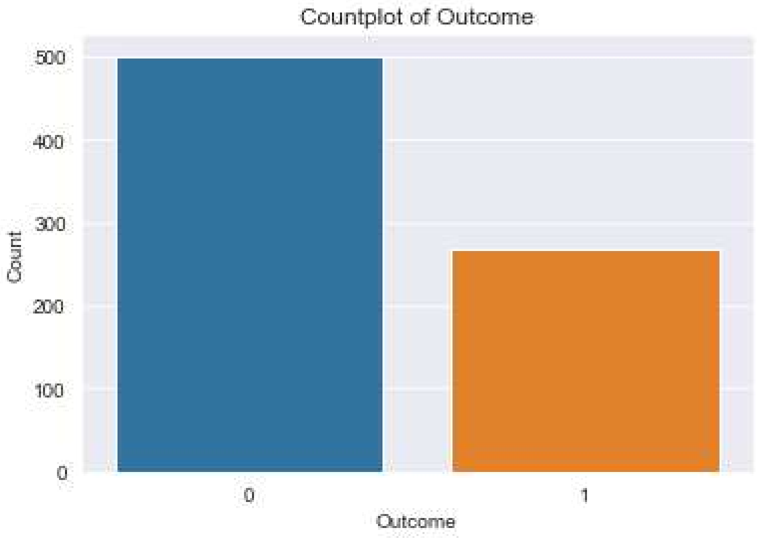
	Pregnancies	Glucose	BloodPressure	SkinThickness	Insulin	BMI	DiabetesPedigreeF
0	6	148.0	72.0	35.000000	79.799479	33.6	
1	1	85.0	66.0	29.000000	79.799479	26.6	
2	8	183.0	64.0	20.536458	79.799479	23.3	
3	1	89.0	66.0	23.000000	94.000000	28.1	
4	0	137.0	40.0	35.000000	168.000000	43.1	

Countplot

In [3]:

```
sns.set_style('darkgrid')
sns.countplot(df['Outcome'])
plt.title("Countplot of Outcome")
plt.xlabel('Outcome')
plt.ylabel("Count")
print("Count of class is:\n",df['Outcome'].value_counts())
```

```
Count of class is:
 0    500
1    268
Name: Outcome, dtype: int64
```



We can see that both class is balanced so we need not to perform any sampling method to maintain the balance between both classes. Therefor i will be directly using this data in training and testing purpose without performing any sampling method. Meanwhile during Model Validation , we also need not worry abour ROC Curve because data is not imbalanced, but as this is a medical data so i will be using ROC curve to make sure TYPE 2 ERROR will not be there.

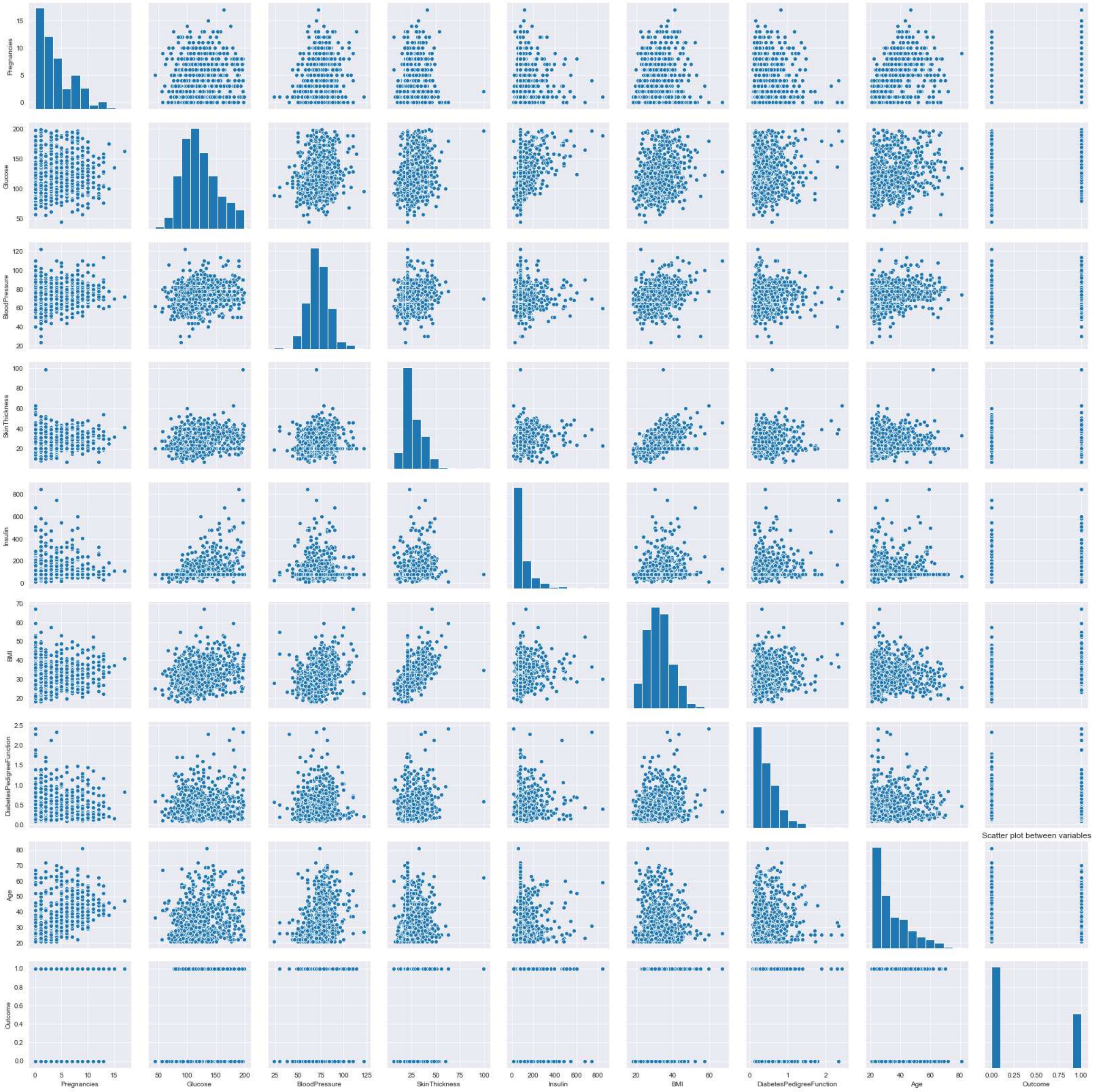
Scatter Plot

In [13]:

```
sns.pairplot(df)
plt.title('Scatter plot between variables')
```

Out[13]:

```
Text(0.5, 1, 'Scatter plot between variables')
```



We can see from scatter plot that there is no strong multicolinearity among features, but between skin thickness and BMI, Pregnancies and age it looks like there is small chance of positive correlation..i will explore more when analyzing correlation

Correlation Analysis

In [4]:

```
df.corr()
```

Out[4]:

	Pregnancies	Glucose	BloodPressure	SkinThickness	Insulin
Pregnancies	1.000000	0.127964	0.208984	0.013376	-0.018082
Glucose	0.127964	1.000000	0.219666	0.160766	0.396597
BloodPressure	0.208984	0.219666	1.000000	0.134155	0.010926
SkinThickness	0.013376	0.160766	0.134155	1.000000	0.240361
Insulin	-0.018082	0.396597	0.010926	0.240361	1.000000
BMI	0.021546	0.231478	0.281231	0.535703	0.189856
DiabetesPedigreeFunction	-0.033523	0.137106	0.000371	0.154961	0.157806
Age	0.544341	0.266600	0.326740	0.026423	0.038652
Outcome	0.221898	0.492908	0.162986	0.175026	0.179185

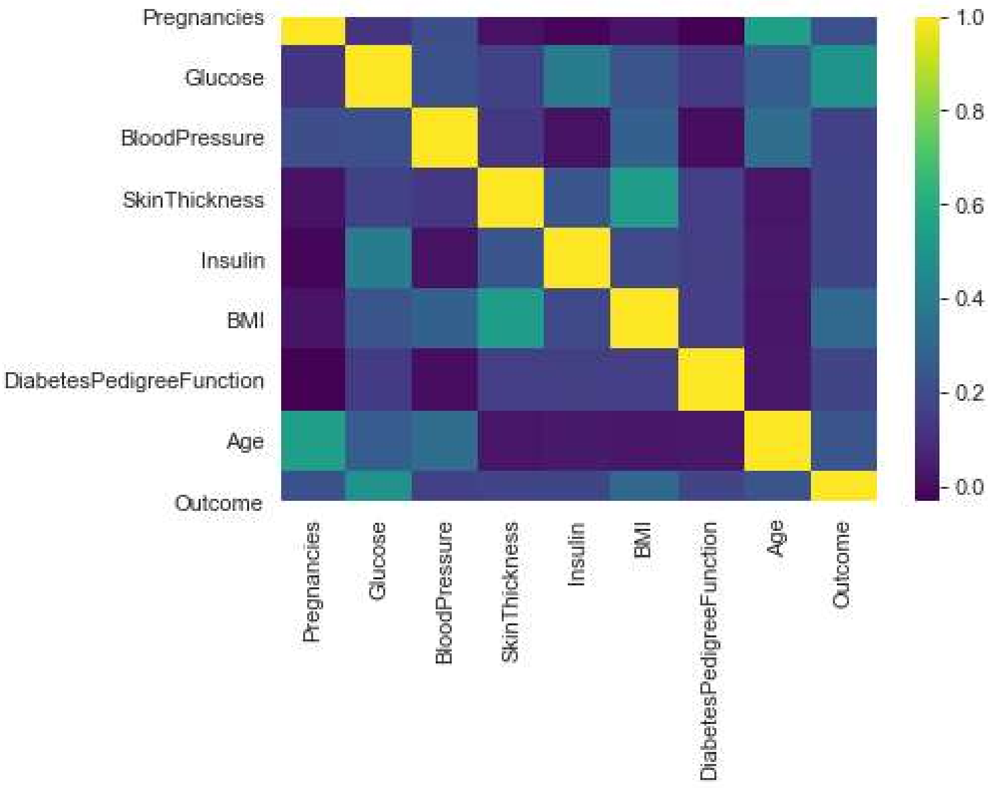
We can clearly see that Glucose and BMI has good impact on outcome. There is a strong positive correlation between BMI and Skinthickness or Pregnancies and age

In [6]:

```
plt.figure(dpi=80)
sns.heatmap(df.corr(),cmap='viridis')
```

Out[6]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x287458bbb70>
```


Pregnancies
Glucose
BloodPressure
SkinThickness
Insulin
BMI
DiabetesPedigreeFunction
Age
Outcome