In [129]:

```
import numpy as np
import pandas as pd
df = pd.read_csv('C:\\Users\\smita\\Downloads\\PBI3.csv')
print df.head()
```

```
   Master Serial No.            NAME OF STUDENT Roll No. Company select 1  \
0                788  Rutuja Shrinivas Abdagire   T31501        QUANTIPHI
1                789     Ankita Santosh Adchule   T31502           Fiserv
2                790      Sakshi Vinod Bajoriya   T31503        CAPGEMINI
3                791     Saurabh Digambar Bathe   T31504        CAPGEMINI
4                792     Vishakha Arjun Bhujbal   T31505            Yardi

  Company select 2 Company select 3  SSCScore SSCBoard  SSCPassing  HSCScore  \
0              NaN              NaN     85.00      SSC        2013     78.30
1              NaN              NaN     79.82      SSC        2013     74.62
2            Wipro              NaN     89.27      SSC        2013     75.54
3              NaN              NaN     80.18      SSC        2013     74.62
4              NaN              NaN     88.91      SSC        2013     72.46

   ... TE SEM 1 Percentage  TE SEM 2 Percentage  BE SEM 1 Percentage  \
0  ...               66.62                66.62               68.376
1  ...               67.32                63.45               74.008
2  ...               64.68                71.10               82.016
3  ...               74.98                67.41               74.360
4  ...               60.02                67.76               75.592

   Aggregate(CGPA)  Aggregate(Percentage)  LiveBacklog  DeadBacklog  YD  \
0             7.73                  68.05            0            0   0
1             7.54                  66.31            0            5   0
2             7.54                  66.31            0            4   0
3             8.19                  72.10            0            1   0
4             7.74                  68.12            0            4   0

   Gender  Placed
0  FEMALE       1
1  FEMALE       1
2  FEMALE       1
3    MALE       1
4  FEMALE       1

[5 rows x 33 columns]
```

In [130]:

```
df.describe().T
```

Out[130]:

	count	mean	std	min	25%	50%	75%	max
Master Serial No.	72.0	824.138889	21.502247	788.000	805.7500	824.500	842.2500	862.000
SSCScore	72.0	79.589861	16.667460	8.400	77.3675	84.280	87.2000	93.820
SSCPassing	72.0	2012.833333	0.375293	2012.000	2013.0000	2013.000	2013.0000	2013.000
HSCScore	72.0	72.752083	7.331878	56.000	66.5025	74.075	78.3900	85.000
HSCPassing	72.0	2015.000000	0.000000	2015.000	2015.0000	2015.000	2015.0000	2015.000
FE SEM 1 SGPA	60.0	7.827500	1.062438	5.750	6.9800	7.880	8.6800	9.640
FE SEM 2 SGPA	60.0	7.459500	1.119590	5.450	6.6125	7.680	8.2500	9.600
SE SEM 1 SGPA	71.0	7.066338	1.056496	4.710	6.3600	7.080	7.7800	9.360
SE SEM 2 SGPA	72.0	7.051944	1.339858	2.960	6.4200	7.120	8.0050	9.400
TE SEM 1 SGPA	72.0	7.247917	1.160371	3.600	6.8000	7.410	8.0400	9.130
TE SEM 2 SGPA	72.0	7.138472	1.369569	2.210	6.5675	7.370	8.0800	8.730
BE SEM 1 SGPA	72.0	8.100972	0.948655	4.040	7.7700	8.360	8.6125	9.320
FE SEM 1 Percentage	60.0	68.880333	9.351842	50.570	61.4250	69.345	76.3800	84.830

FE SEM 2 Percentage	60.0	65.645667	9.849731	48.000	58.125	67.500	72.575	84.480
SE SEM 1 Percentage	71.0	62.183239	9.296854	41.450	55.9850	62.300	68.4650	82.370
SE SEM 2 Percentage	72.0	62.057917	11.790868	26.050	56.4950	62.660	70.4450	82.720
TE SEM 1 Percentage	72.0	63.780694	10.212042	31.680	59.8425	65.205	70.7500	80.340
TE SEM 2 Percentage	72.0	62.847917	12.050049	19.450	57.7975	64.855	71.1000	76.820
BE SEM 1 Percentage	72.0	71.288556	8.348167	35.552	68.3760	73.568	75.7900	82.016
Aggregate(CGPA)	72.0	7.382500	1.021318	4.180	6.8075	7.530	8.1125	9.110
Aggregate(Percentage)	72.0	64.961250	8.991905	36.750	59.9100	66.260	71.3950	80.190
LiveBacklog	72.0	0.500000	1.727980	0.000	0.0000	0.000	0.0000	10.000
DeadBacklog	72.0	2.652778	2.988993	0.000	0.0000	2.000	4.0000	11.000
YD	72.0	0.138889	0.348257	0.000	0.0000	0.000	0.0000	1.000
Placed	72.0	0.777778	0.418657	0.000	1.0000	1.000	1.0000	1.000

In [131]:

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 72 entries, 0 to 71
Data columns (total 33 columns):
Master Serial No.        72 non-null int64
NAME OF STUDENT          72 non-null object
Roll No.                 72 non-null object
Company select 1         56 non-null object
Company select 2         13 non-null object
Company select 3         4 non-null object
SSCScore                 72 non-null float64
SSCBoard                 72 non-null object
SSCPassing               72 non-null int64
HSCScore                 72 non-null float64
HSCBoard                 72 non-null object
HSCPassing               72 non-null int64
FE SEM 1 SGPA            60 non-null float64
FE SEM 2 SGPA            60 non-null float64
SE SEM 1 SGPA            71 non-null float64
SE SEM 2 SGPA            72 non-null float64
TE SEM 1 SGPA            72 non-null float64
TE SEM 2 SGPA            72 non-null float64
BE SEM 1 SGPA            72 non-null float64
FE SEM 1 Percentage      60 non-null float64
FE SEM 2 Percentage      60 non-null float64
SE SEM 1 Percentage      71 non-null float64
SE SEM 2 Percentage      72 non-null float64
TE SEM 1 Percentage      72 non-null float64
TE SEM 2 Percentage      72 non-null float64
BE SEM 1 Percentage      72 non-null float64
Aggregate(CGPA)          72 non-null float64
Aggregate(Percentage)    72 non-null float64
LiveBacklog              72 non-null int64
DeadBacklog              72 non-null int64
YD                       72 non-null int64
Gender                   72 non-null object
Placed                   72 non-null int64
dtypes: float64(18), int64(7), object(8)
memory usage: 18.6+ KB
```

In [132]:

```
df.describe(include=['object'])
```

Out[132]:

	NAME OF STUDENT	Roll No.	Company select 1	Company select 2	Company select 3	SSCBoard	HSCBoard	Gender
count	72	72	56	13	4	72	72	72
unique	72	72	22	7	3	3	3	2

	NAME OF STUDENT	Roll No.	Company select 1	Company select 2	Company select 3	SSCBoard	HSCBoard	Gender
top	Shravani Sanjay Shinde	T315G2	L&T INFOTECH	CAPGEMINI	TIAA	SSC	HSC	FEMALE
freq	1	1	10	6	2	64	57	47

In [133]:

```
import seaborn as sns
import matplotlib.pyplot as plt
%matplotlib inline

placedcounts=df['Placed'].value_counts()
print("Placed count is:",placedcounts[1])
total = placedcounts[0]+placedcounts[1]
print("Total count is:",total)
# Using matplotlib pie chart and label the pie chart

plt.pie(placedcounts,labels=['placed','not placed']);
```

```
('Placed count is:', 56)
('Total count is:', 72)
```

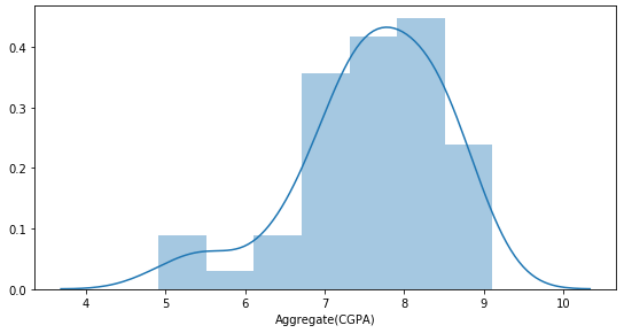
In [134]:

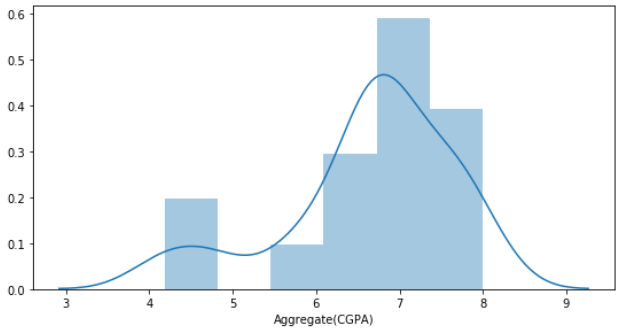
```
placeddf = df[df['Placed']==1]
notplaceddf =df[df['Placed']==0]
```

In [135]:

```
fig = plt.figure(figsize=(20,10))
ax1 = fig.add_subplot(221)
ax2 = fig.add_subplot(222)

# Tell pointplot to plot on ax1 with the ax argument (satisfaction level)
sns.distplot(placeddf['Aggregate(CGPA)'],ax = ax1);
# Tell the factorplot to plot on ax2 with the ax argument (satisfaction level)
sns.distplot(notplaceddf['Aggregate(CGPA)'],ax = ax2);
```



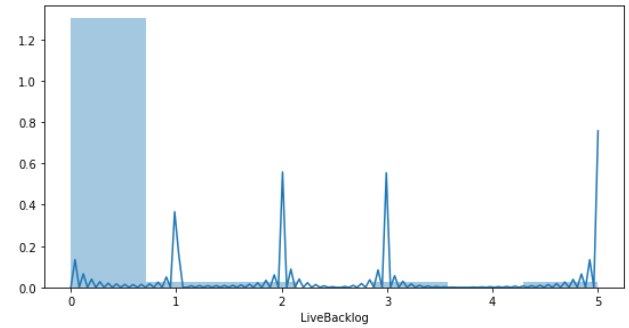


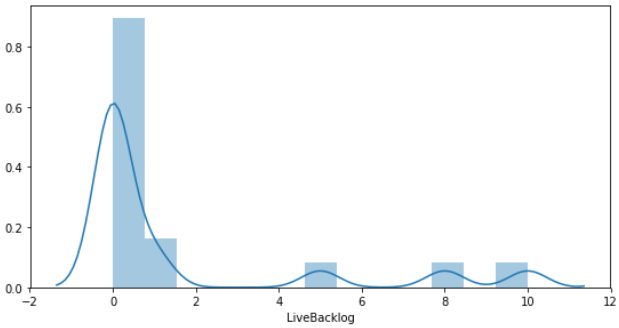
In [136]:

```
fig = plt.figure(figsize=(20,10))
ax1 = fig.add_subplot(221)
ax2 = fig.add_subplot(222)
```

```
# Tell pointplot to plot on ax1 with the ax argument
sns.distplot(placeddf['LiveBacklog'], kde=True,ax=ax1);

# Tell the factorplot to plot on ax2 with the ax argument
sns.distplot(notplaceddf['LiveBacklog'], kde=True,ax=ax2);
```



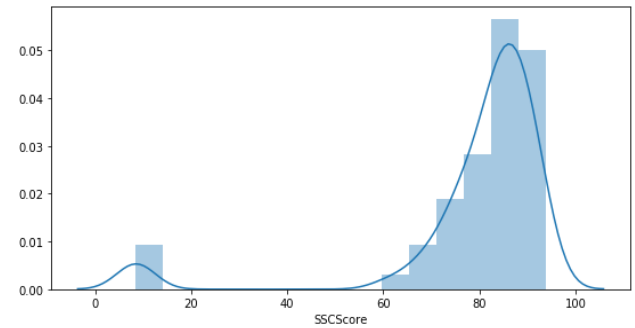


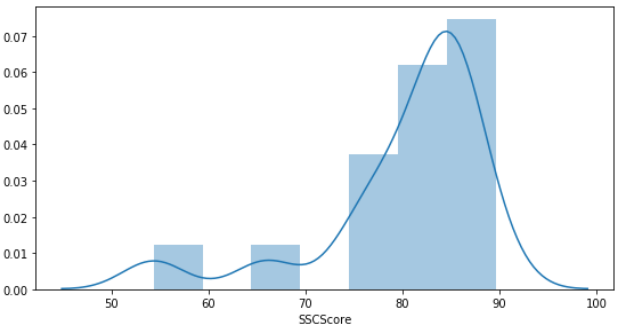
In [137]:

```
# Create a figure instance, and the two subplots
fig = plt.figure(figsize=(20,10))
ax1 = fig.add_subplot(221)
ax2 = fig.add_subplot(222)

sns.distplot(placeddf['SSCScore'], kde=True,ax=ax1);

sns.distplot(notplaceddf['SSCScore'], kde=True,ax=ax2);
```



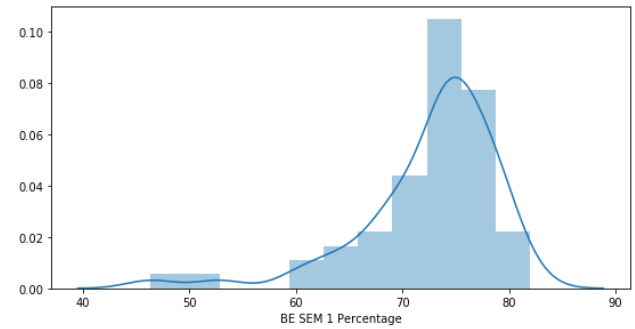


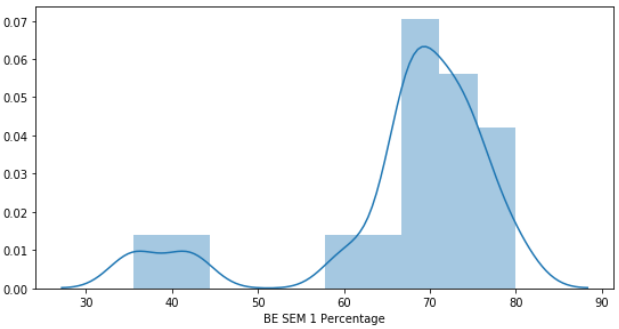
In [138]:

```
# Create a figure instance, and the two subplots
fig = plt.figure(figsize=(20,10))
ax1 = fig.add_subplot(221)
ax2 = fig.add_subplot(222)

sns.distplot(placeddf['BE SEM 1 Percentage'], kde=True,ax=ax1);

sns.distplot(notplaceddf['BE SEM 1 Percentage'], kde=True,ax=ax2);
```





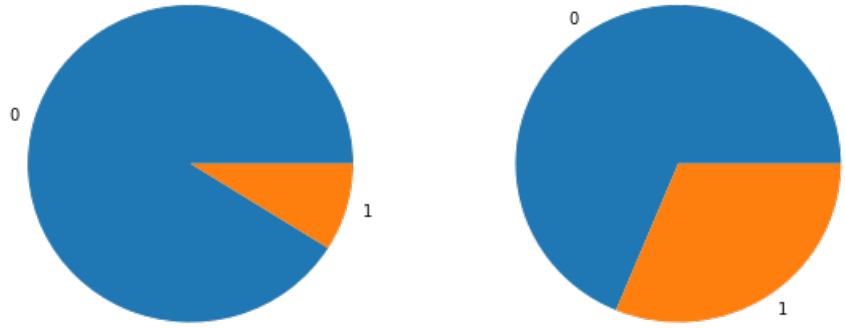
In [139]:

```
#create a figure with two subplots
```

```
fig = plt.figure(figsize=(10,10))
ax1 = fig.add_subplot(221)
ax2 = fig.add_subplot(222)

# Do the value counts of work accident
placedYDcounts = placeddf['YD'].value_counts()
notplacedYDcounts = notplaceddf['YD'].value_counts()


# plot each pie chart in a separate subplot
ax1.pie(placedYDcounts,labels=placedYDcounts.index);
ax2.pie(notplacedYDcounts,labels=notplacedYDcounts.index);
```

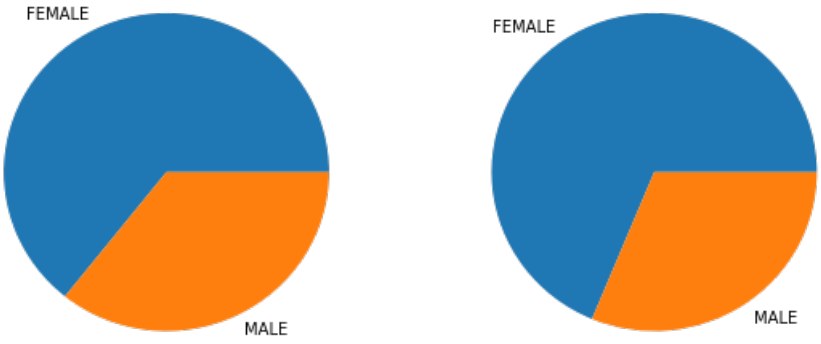


In [140]:

```
# create a figure with two subplots
fig = plt.figure(figsize=(10,10))
ax1 = fig.add_subplot(221)
ax2 = fig.add_subplot(222)

placedGendercounts = placeddf['Gender'].value_counts()
notplacedGendercounts = notplaceddf['Gender'].value_counts()


# plot each pie chart in a separate subplot
ax1.pie(placedGendercounts,labels=placedGendercounts.index);
ax2.pie(notplacedGendercounts,labels=notplacedGendercounts.index);
```



In [141]:

```
df.drop(['Company select 2','Company select 3'],inplace = True, axis = 1)
```

In [142]:

```
df.drop(['Master Serial No.','NAME OF STUDENT','Roll No.'],inplace = True, axis = 1)
```

In [143]:

```
df.info()
```

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 72 entries, 0 to 71
Data columns (total 28 columns):
Company select 1         56 non-null object
SSCScore                 72 non-null float64
SSCBoard                 72 non-null object
SSCPassing               72 non-null int64
HSCScore                 72 non-null float64
HSCBoard                 72 non-null object
HSCPassing               72 non-null int64
FE SEM 1 SGPA            60 non-null float64
FE SEM 2 SGPA            60 non-null float64
SE SEM 1 SGPA            71 non-null float64
SE SEM 2 SGPA            72 non-null float64
TE SEM 1 SGPA            72 non-null float64
TE SEM 2 SGPA            72 non-null float64
BE SEM 1 SGPA            72 non-null float64
FE SEM 1 Percentage      60 non-null float64
FE SEM 2 Percentage      60 non-null float64
SE SEM 1 Percentage      71 non-null float64
SE SEM 2 Percentage      72 non-null float64
TE SEM 1 Percentage      72 non-null float64
TE SEM 2 Percentage      72 non-null float64
BE SEM 1 Percentage      72 non-null float64
Aggregate(CGPA)          72 non-null float64
Aggregate(Percentage)    72 non-null float64
LiveBacklog              72 non-null int64
DeadBacklog              72 non-null int64
YD                       72 non-null int64
Gender                   72 non-null object
Placed                   72 non-null int64
dtypes: float64(18), int64(6), object(4)
memory usage: 15.8+ KB
```

In [144]:

```
df.SSCBoard = df.SSCBoard.map({'SSC':0,'CBSE':1, 'ICSE':2})
df.HSCBoard = df.HSCBoard.map({'HSC':0,'CBSE':1,'MSBTE':2})
```

In [145]:

```
df.drop(['Company select 1'],inplace = True, axis = 1)
```

In [146]:

```
df.Gender = df.Gender.map({'MALE':0,'FEMALE':1})
```

In [147]:

```
df = df.drop(['SSCPassing','HSCPassing'],axis=1)
```

In [148]:

```
df = df.fillna(df.mean())
```

In [149]:

```
# X = df[['SSCScore','HSCScore','SSCBoard', 'FE SEM 1 SGPA']]
# X = X.fillna(X.mean())
# X.isnull()
```

In [150]:

```
# X = df.drop(['Placed'],axis=1)
y = df['Placed']

print X.head()
print(len(X))
```

```
print(len(X))
```

```
   SSCScore  HSCScore  SSCBoard  FE SEM 1 SGPA
0     85.00     78.30         0           8.60
1     79.82     74.62         0           8.08
2     89.27     75.54         0           7.80
3     80.18     74.62         0           8.40
4     88.91     72.46         0           8.68
72
```

In [172]:

```
import numpy as np
from sklearn.model_selection import train_test_split
from sklearn import preprocessing,neighbors,svm
from sklearn.metrics import accuracy_score

X_train, X_test, y_train,y_test= train_test_split(X,y,test_size=0.2)
print(len(y_train) + len(y_test))
```

```
72
```

In [173]:

```
from sklearn.metrics import accuracy_score, log_loss
from sklearn.ensemble import RandomForestClassifier
from sklearn import tree
randomclf = RandomForestClassifier()
randomclf.fit(X_train, y_train)

pred = randomclf.predict(X_test)
accuracy = accuracy_score(pred, y_test)
print "Accuracy Random Forest - ",accuracy
```

```
Accuracy Random Forest -  0.5333333333333333
```

In [174]:

```
clf = svm.SVC()
# Fit the svm object with train data
clf.fit(X_train,y_train)
```

Out[174]:

```
SVC(C=1.0, cache_size=200, class_weight=None, coef0=0.0,
  decision_function_shape='ovr', degree=3, gamma='auto_deprecated',
  kernel='rbf', max_iter=-1, probability=False, random_state=None,
  shrinking=True, tol=0.001, verbose=False)
```

In [175]:

```
pred = clf.predict(X_test)

accuracy = accuracy_score(pred, y_test)

print "Accuracy using SVC classifier - ",accuracy
```

```
Accuracy using SVC classifier -  0.9333333333333333
```