In [42]:
```
# We are importing all the required libraries

from sklearn.model_selection import train_test_split
from sklearn.linear_model import LogisticRegression
from sklearn.metrics import confusion_matrix
from sklearn.metrics import accuracy_score
from sklearn.metrics import classification_report
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

```

In [43]:
```
# Now,we are reading our csv dataset.

dataset = pd.read_csv("ms_admission.csv")
```

In [44]:
```
dataset
```

Out[44]:

	gre	gpa	work_experience	admitted
0	380	3.61	3	0
1	660	3.67	3	1
2	800	4.00	1	1
3	640	3.19	4	1
4	520	2.93	4	0
...	...	...	...	...
395	620	4.00	2	0
396	560	3.04	3	0
397	460	2.63	2	0
398	700	3.65	2	0
399	600	3.89	3	0

400 rows × 4 columns

In [45]:
```
# We are now printing all the columns avaiable in the dataset.

print(dataset.columns)
```

```
Index(['gre', 'gpa', 'work_experience', 'admitted'], dtype='object')
```

In [46]:
```
# We assigned the independent variables to X and dependent varibale
X = dataset[['gre', 'gpa','work_experience']]
y = dataset['admitted']
```

In [47]:
```
# We are printing to top 5 elements using the head().
print(X.head())
```

```
   gre   gpa  work_experience
0  380  3.61                3
1  660  3.67                3
2  800  4.00                1
3  640  3.19                4
4  520  2.93                4
```

In [48]:
```
print(y.head())
```

```
0    0
1    1
2    1
3    1
4    0
Name: admitted, dtype: int64
```

In [49]:
```
# We are now dividing the whole dataset into taining and test. For t
# for training

X_train,X_test,y_train,y_test = train_test_split(X,y,test_size=0.25,
```

In [50]:
```
#create prediction model
model = LogisticRegression()
```

In [51]:
```
#fit model
model.fit(X_train, y_train)
```

Out[51]:
```
LogisticRegression()
```

In [52]:
```
# Now, we are passing the test data to the model for the prediction.
y_predictions = model.predict(X_test)
```

In [53]:
```
print(y_predictions)
```

```
[0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 1 0 1 0 0 0 0 0 0 0 0 0 1 0 0 1 0 0 0
0 0
 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0
1 0
 0 1 0 0 1 0 0 0 0 1 0 0 0 1 0 1 0 0 0 0 0 0 0 0 0 0]
```

In [54]:
```
print("prediction: {} ".format(accuracy_score(y_test,y_predictions)
print(classification_report(y_test, y_predictions))
```

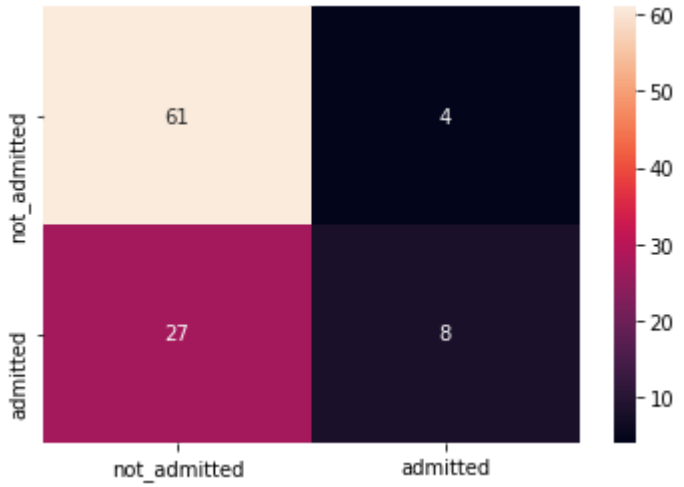
```
prediction: 69.0
              precision    recall  f1-score   support

           0       0.69      0.94      0.80        65
           1       0.67      0.23      0.34        35

    accuracy                           0.69       100
   macro avg       0.68      0.58      0.57       100
weighted avg       0.68      0.69      0.64       100
```

In [55]:
```
#plotting confusion matrix on heatmap
confusion_matrix = confusion_matrix(y_test, y_predictions)
sns.heatmap(confusion_matrix, annot=True, xticklabels=['not_admitted
# sns.heatmap(confusion_matrix, annot=True)

plt.figure(figsize=(3,3))
plt.show()
```




```
<Figure size 216x216 with 0 Axes>
```

In [ ]:
```

```

In [56]:
```
# We printing the top 5 elements of the X_test (independent variable
X_test.head()
```

Out[56]:

	gre	gpa	work_experience
132	580	3.40	2
309	440	2.98	3
341	560	2.65	3
196	660	3.07	3
246	680	3.34	2

In [57]:
```
# We printing the top 5 elements of the y_test (dependent variable)
y_test.head()
```

Out[57]:
```
132    0
309    0
341    1
196    0
246    0
Name: admitted, dtype: int64
```

In [58]:
```
# We just printing the top 5 results
# We found that from the above truth y_test only one person should b
# only 341 index value has 1 value (admitted) and else has values 0

# And in the prediction results we got all results same except the 3
# So our predictions is woring fine.
y_predictions[:5]
```

Out[58]:
```
array([0, 0, 0, 0, 0])
```

Now, we are going to check the prediction for the new dataset. We are going to create a new dataframe and we will test new dataframe on the trained model.

In [59]:
```
new_testData = {'gre': [595,735,682,613,715],
                'gpa': [2.1,4,3.4,2.4,3],
                'work_experience': [4,4,5,2,4]
                }
```

In [60]:
```
test_data = pd.DataFrame(new_testData,columns= ['gre', 'gpa','work_e
```

In [61]:
```
1 test_data
```

Out[61]:

	gre	gpa	work_experience
0	595	2.1	4
1	735	4.0	4
2	682	3.4	5
3	613	2.4	2
4	715	3.0	4

We are going to pass our new test_data to model.predict to see the result on the unseen dataset.

In [62]:
```
1 y_pred = model.predict(test_data)
```

In [63]:
```
1 # We got the predictions on the new dataset that no one will be sele
2 y_pred
```

Out[63]:
```
array([0, 0, 0, 0, 0])
```

In [ ]:
```
1
```