

## Q1)

```
import pandas as pd  
import matplotlib.pyplot as plt  
from sklearn.linear_model import LinearRegression  
from sklearn.preprocessing import PolynomialFeatures  
from sklearn.metrics import r2_score  
  
df = pd.read_csv('Position_Salaries.csv')  
df  
  
X = df[['Level']].values  
y = df['Salary'].values  
  
lin_reg = LinearRegression()  
lin_reg.fit(X, y)  
  
poly_reg = PolynomialFeatures(degree=4)  
X_poly = poly_reg.fit_transform(X)  
lin_reg_poly = LinearRegression()  
lin_reg_poly.fit(X_poly, y)  
  
level_11_salary_linear = lin_reg.predict([[11]])[0]  
level_12_salary_linear = lin_reg.predict([[12]])[0]  
level_11_salary_poly = lin_reg_poly.predict(poly_reg.transform([[11]]))[0]  
level_12_salary_poly = lin_reg_poly.predict(poly_reg.transform([[12]]))[0]
```

```
print("\nPredicted Salaries:")  
print("level_11_salary_linear:",level_11_salary_linear)  
print("level_12_salary_linear:",level_12_salary_linear)  
print("level_11_salary_poly:",level_11_salary_poly)  
print("level_12_salary_poly:",level_12_salary_poly)  
  
y_pred_linear = lin_reg.predict(X)  
y_pred_poly = lin_reg_poly.predict(X_poly)  
  
print("Linear Regression R2 Score:", r2_score(y, y_pred_linear))  
print("Polynomial Regression R2 Score:", r2_score(y, y_pred_poly))  
  
plt.scatter(X, y, color='red', label='Original Data')  
plt.plot(X, y_pred_linear, color='blue', label='Linear Regression')  
plt.plot(X,y_pred_poly, color='green', label='Polynomial Regression')  
plt.title('Position Level vs Salary')  
plt.xlabel('Position Level')  
plt.ylabel('Salary')  
plt.show()
```

## Q2)

```
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LogisticRegression
from sklearn.metrics import accuracy_score
import pandas as pd

data = pd.read_csv("accidentcleaned.csv");
data

features = ['Age', 'Speed']
target='Survival'

X= data[features]
y= data[target]

X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2)

model = LogisticRegression()
model.fit(X_train, y_train)

y_pred = model.predict(X_test)

accuracy = accuracy_score(y_test,y_pred)
print("Accuracy:", accuracy )
```

```
Survive = pd.DataFrame({  
    'Age': [39],  
    'Speed': [60]  
})  
  
predicted= model.predict(Survive)  
  
print("Predicted Survival:", predicted[0])
```