1. SQL

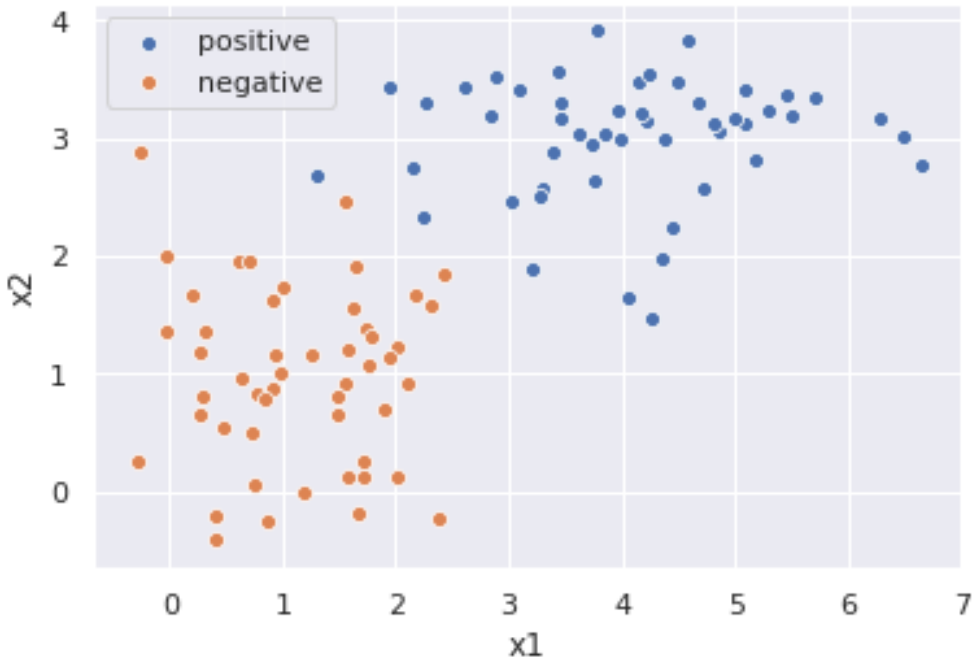
“employee”

Name	Department	Start Date	Experience level	Starting Salary
John	Marketing	2018-03-01	Entry	120
Jerry	Marketing	2017-01-05	Senior	140
Jack	Product	2018-04-01	Mid	160
Julius	Engineering	2018-05-01	Mid	200
Johnny	Engineering	2017-01-02	Mid	170
...	...	...	...	...

Q: Return a table with only the people who have the maximum starting salary for their respective department.

2. ML-Question

A.



B.

Import LinearModels from sklearn
lr=LinearModels.LogisticRegression()
lr.fit(X,y)
lr.coefs_

	coefficient
Intercept	-8.702324
x1	2.079141
x2	1.286470

General form for GLM
g(y) = b0 + b1x1 + b2x2

Logistic regression
logit(p) = b0 + b1x1 + b2x2
log(p/(1-p)) = b0+ b1*x1 + b2*x2

C.

```
/usr/local/lib/python3.7/site-packages/sklearn/linear_model/sag.py:337: ConvergenceWarning: The max_iter was reached
which means the coef_ did not converge
  "the coef_ did not converge", ConvergenceWarning)
```

```
LogisticRegression(C=1.0, class_weight=None, dual=False, fit_intercept=True,
                   intercept_scaling=1, l1_ratio=None, max_iter=100,
                   multi_class='warn', n_jobs=None, penalty='none',
                   random_state=None, solver='sag', tol=0.0001, verbose=0,
                   warm_start=False)
```

D.

```
LogisticRegression(C=1.0, class_weight=None, dual=False, fit_intercept=True,
                   intercept_scaling=1, l1_ratio=None, max_iter=5000,
                   multi_class='warn', n_jobs=None, penalty='none',
                   random_state=None, solver='sag', tol=0.0001, verbose=0,
                   warm_start=False)
```

	0
Intercept	-30.223716
x1	4.831596
x2	9.123460

X1, X2 are features