SQL Course

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Chapter 1: Machine Learning Landscape

1 Types of Machine Learning Systems

Useful to break down ML system types into 3 categories:

- based on supervision (labeling)
    - supervised learning
    - unsupervised learning
    - semisupervised learning
    - reinforcement learning
- based on incremental learning
    - online learning
    - batch learning
- based on learning type
    - instance-based
    - model-based

1.1 Supervised/Unsupervised Learning

Classify according to amount and type of supervision during training.

1.1.1 Supervised Learning

Training data includes the desired solution called **labels**.

```python
import numpy as np

def incmatrix(genl1,genl2):
    m = len(genl1)
```

```python
    n = len(genl2)
    M = None #to become the incidence matrix
    VT = np.zeros((n*m,1), int)   #dummy variable

    #compute the bitwise xor matrix
    M1 = bitxormatrix(genl1)
    M2 = np.triu(bitxormatrix(genl2),1)

    for i in range(m-1):
        for j in range(i+1, m):
            [r,c] = np.where(M2 == M1[i,j])
            for k in range(len(r)):
                VT[(i)*n + r[k]] = 1;
                VT[(i)*n + c[k]] = 1;
                VT[(j)*n + r[k]] = 1;
                VT[(j)*n + c[k]] = 1;

                if M is None:
                    M = np.copy(VT)
                else:
                    M = np.concatenate((M, VT), 1)

                VT = np.zeros((n*m,1), int)

    return M




select *
from employee_info
group by 1,2
having count(1) > 0
;
```