

# Introduction to Dimensionality Reduction

# What we will be covering in this module?

- What is Dimensionality Reduction?
- Why is Dimensionality Reduction required?
- Common Dimensionality Reduction techniques

# What is Dimensionality Reduction?

Salary

# What is Dimensionality Reduction?

Age

Salary

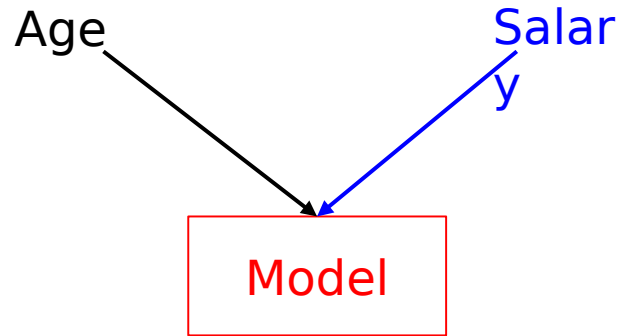
# What is Dimensionality Reduction?

Age

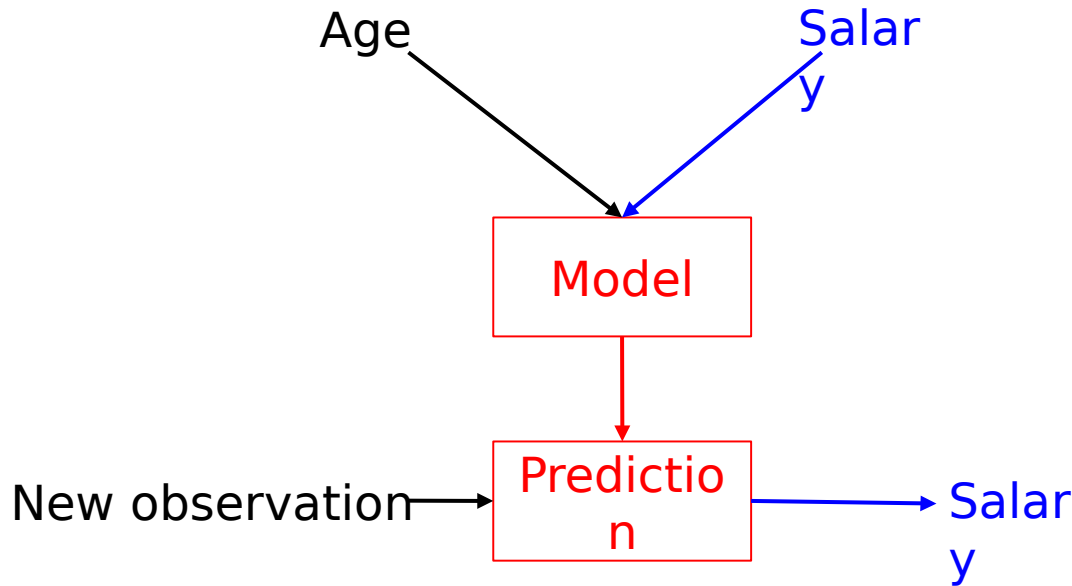
Salary

Model

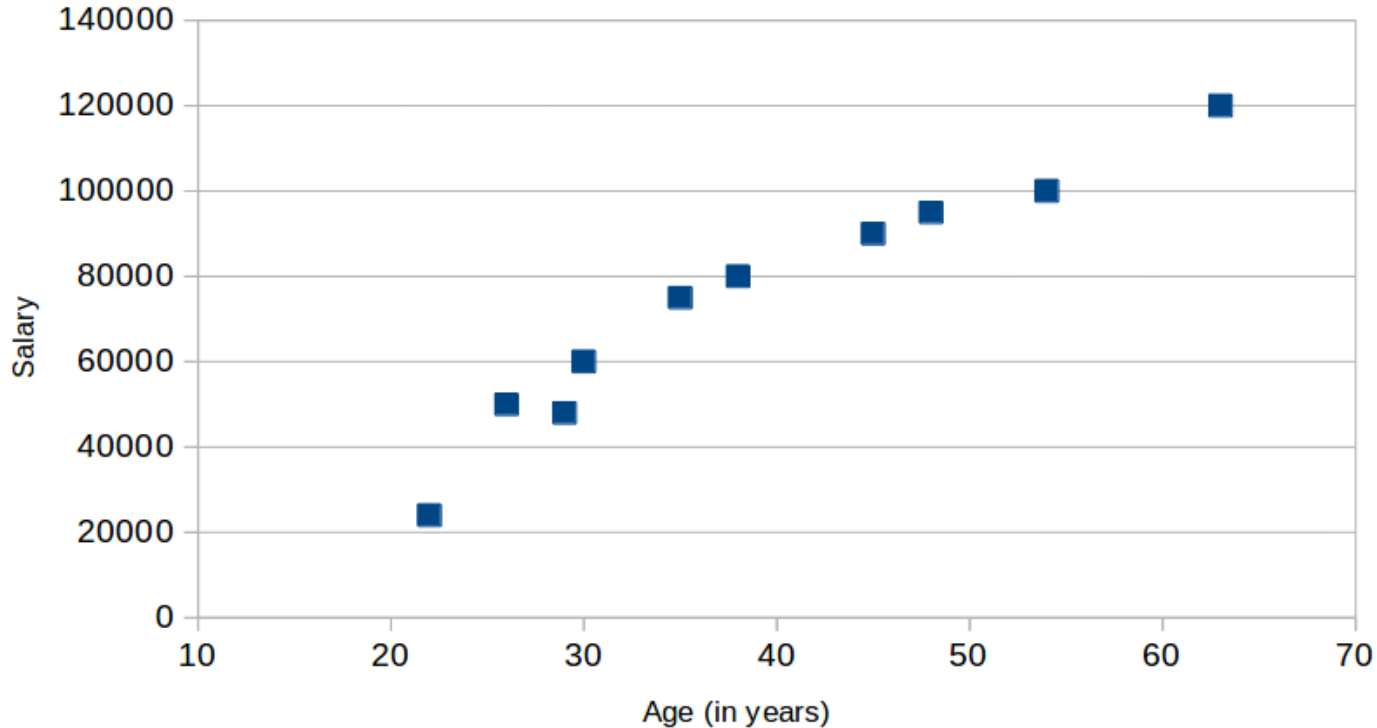
# What is Dimensionality Reduction?



# What is Dimensionality Reduction?



# What is Dimensionality Reduction?





# What is Dimensionality Reduction?

Age

Salary

Occupation

# What is Dimensionality Reduction?

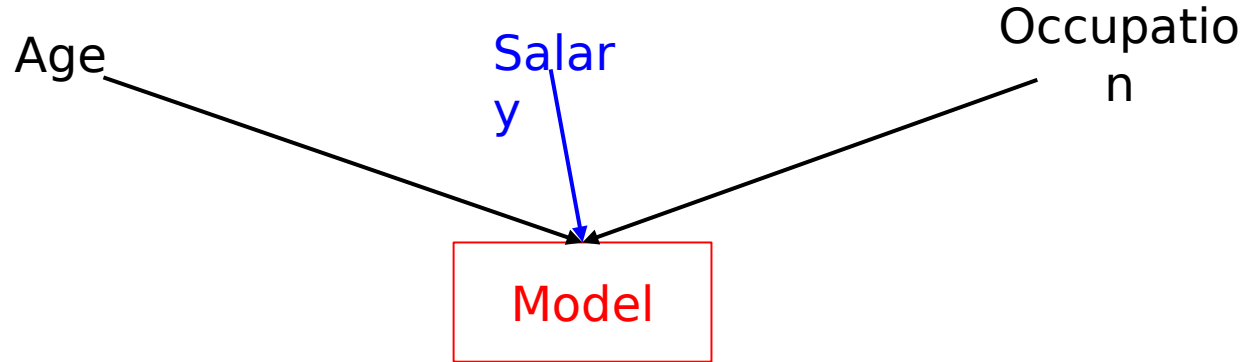
Age

Salary

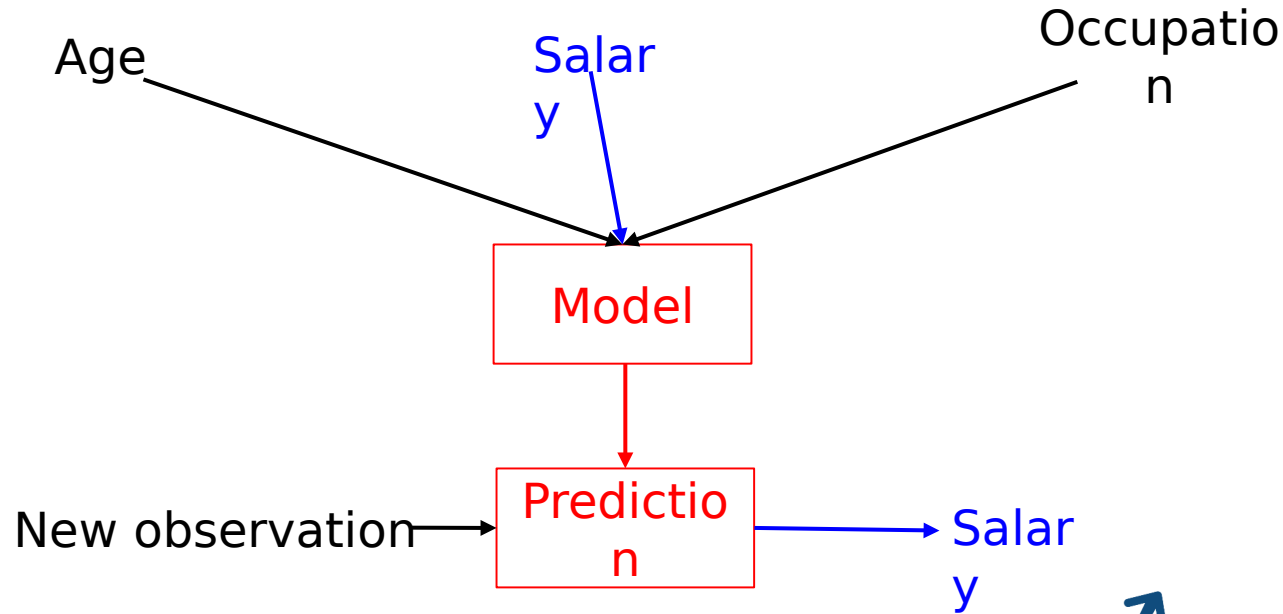
Occupation

Model

# What is Dimensionality Reduction?



# What is Dimensionality Reduction?



# What is Dimensionality Reduction?

Is\_fresher?

Age

Salary

Occupation

CGPA

Experience

Race

Country

# What is Dimensionality Reduction?

Company      Is\_fresher?      Previous\_compa  
ny  
Age      Salar  
y  
Occupatio  
n  
CGPA      Experienc  
e  
Marital\_Status  
Country  
Race  
Family\_member  
s

# What is Dimensionality Reduction?

Company Is\_fresher? Previous\_compa  
ny  
Number\_of\_loa  
ns  
Occupatio  
n  
Age Bank\_balance Salar  
y  
House\_rent  
Credit\_scor  
e  
CGPA Siblings Experienc  
e  
Gender  
Marital\_Status Hobbies Performanc  
e  
Current\_salary  
Country  
Race  
Family\_member  
s  
Play\_sport?

# What is Dimensionality Reduction?

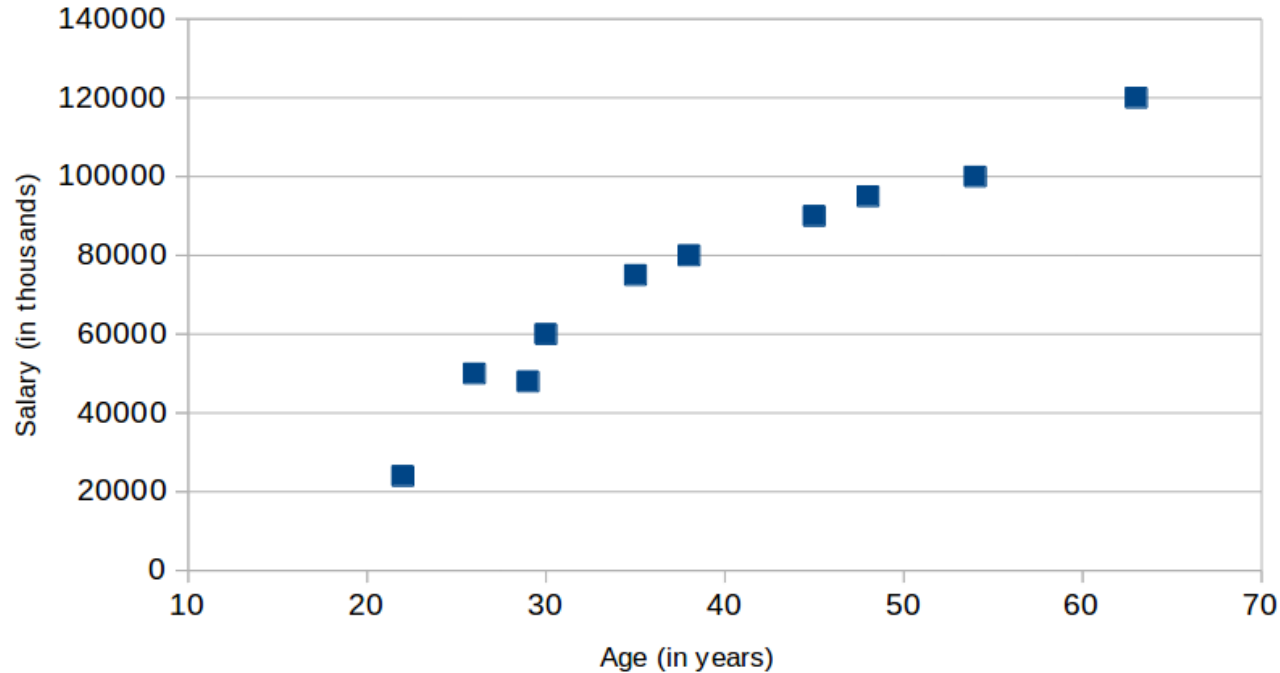
Company Is\_fresher? Previous\_company  
Number\_of\_loans  
Age Bank\_balance Salary Credit\_score Occupation  
House\_rent  
Credit\_score CGPA Siblings Experience Gender  
Marital\_Status Hobbies Performance Current\_salary  
Race Country  
Family\_members Play\_sport?



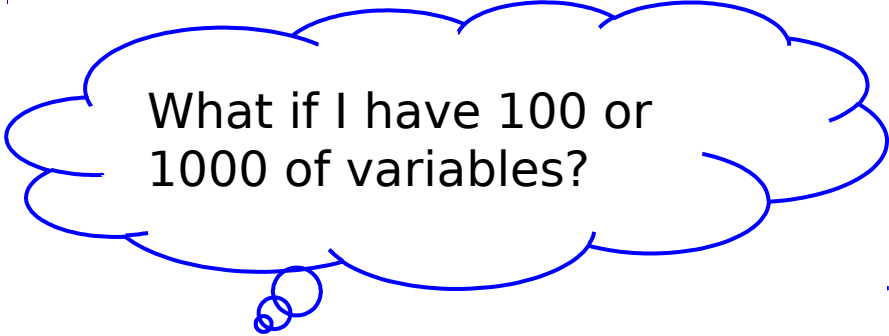
# Challenges with high dimensional data

- Visualization becomes difficult
- All the variables might not be important
- More computation time
- More complex models
- Difficulties in data exploration

# What is Dimensionality Reduction?



# What is Dimensionality Reduction?



What if I have 100 or  
1000 of variables?

# What is Dimensionality Reduction?

More number of plots required

# What is Dimensionality Reduction?

Process of reducing the dimensions of the data ensuring it conveys maximum information

Thank  
You!