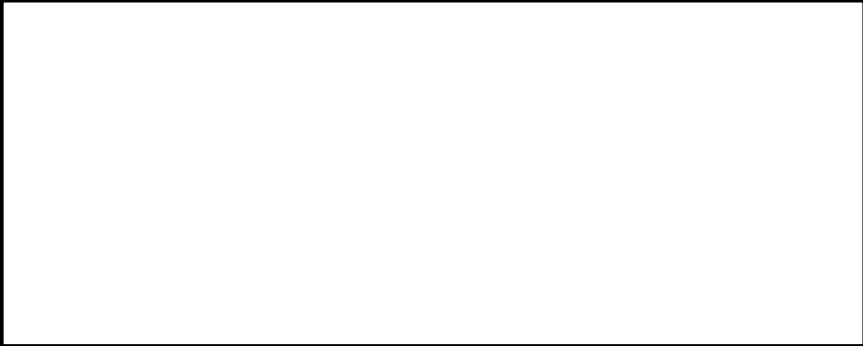




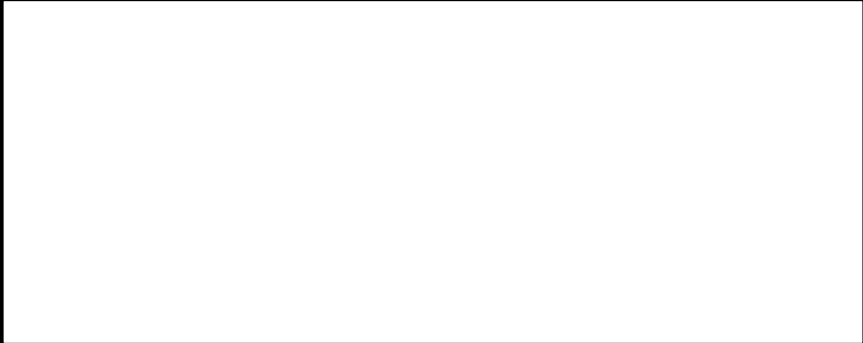
Preliminaries

Used Datasets - Synthetic



# Synthetic Dataset

A



# Synthetic Dataset

## B

*Nir. dimensions: 11*



**Viridimensions: 100**

- Binary Classification Problem

- $x_i^j \sim N(0,1)$

- $$p(y_i = 1 | x_i) = \frac{1}{1 + \text{logit}(x_i)}$$

## ❖ Fixed ture explanations:

- Syn 1:  $\exp(x_i^1 x_i^2)$
- Syn 2:  $\exp\left(\sum_{j=3}^6 (x_i^j)^2 - 4\right)$
- Syn3:  $\exp\{-10 * \sin(2x_i^7) + 2|x_i^8| + x_i^9 + \exp(-x_i^{10})\}$

## ❖ Variable ture explanations:

- Syn 4: If  $x_i^{11} < 0$ , logit follows Syn 1;  
Otherwise, logit follows Syn 2.
- Syn 5: If  $x_i^{11} < 0$ , logit follows Syn 1;  
Otherwise, logit follows Syn 3.
- Syn 6: If  $x_i^{11} < 0$ , logit follows Syn 2;  
Otherwise, logit follows Syn 3.

# Preliminaries

## Used Datasets - Synthetic

- Binary Classification Problem
- $x_i^j \sim N(0,1)$
- $p(y_i = 1 | x_i) = \frac{1}{1 + \text{logit}(x_i)}$

**Synthetic Dataset  
A**

- Nr. dimensions: 11

**Synthetic Dataset  
B**

- Nr. dimensions: 100

### ❖ Fixed ture explanations:

- Syn 1:  $\exp(x_i^1 x_i^2)$
- Syn 2:  $\exp\left(\sum_{j=3}^6 (x_i^j)^2 - 4\right)$
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### ❖ Variable ture explanations:

- Syn 4: If  $x_i^{11} < 0$ , logit follows Syn 1; Otherwise, logit follows Syn 2.
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- Syn 6: If  $x_i^{11} < 0$ , logit follows Syn 2; Otherwise, logit follows Syn 3.

# Preliminaries

## Used Datasets - Text

- Internet Movie Database (IMDB) dataset
  - A large collection of 50,000 movie reviews
  - Binary labeled: positive (rating  $\geq 7$ ); negative (rating  $\leq 4$ )
  - Commonly employed as a benchmark for evaluating IFS methods