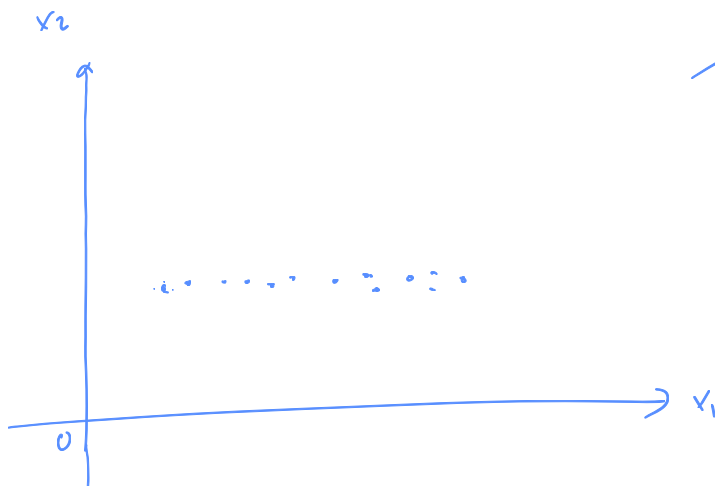
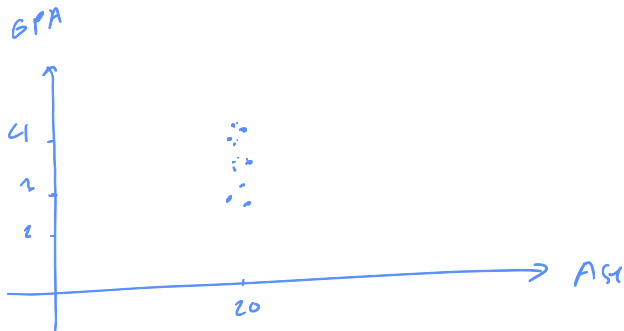


Age	GPA
20	3.5
20	2.1
20	4.0
20.5	3.9
20	1.6
20	2.9
19.5	3.5

① GPA contains more information than Age.

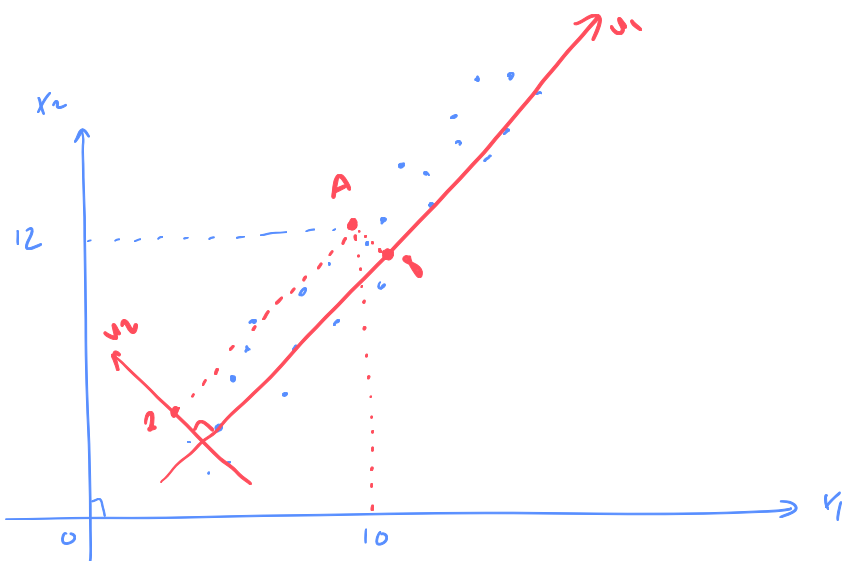
② Age is almost a constant, does not contain much information.

③ If we want to remove a variable, we would remove "Age".



①  $x_2$  does not contain much information

② If we want to remove a variable, we would remove  $x_2$



$x_1$	$x_2$		$u_1$	$u_2$	
(A)	10	12	→	8	2

$u_1$ : The first principal component

$u_2$ : The second principal component.

we can remove  $u_2$  if we want the data has only 1 variable.

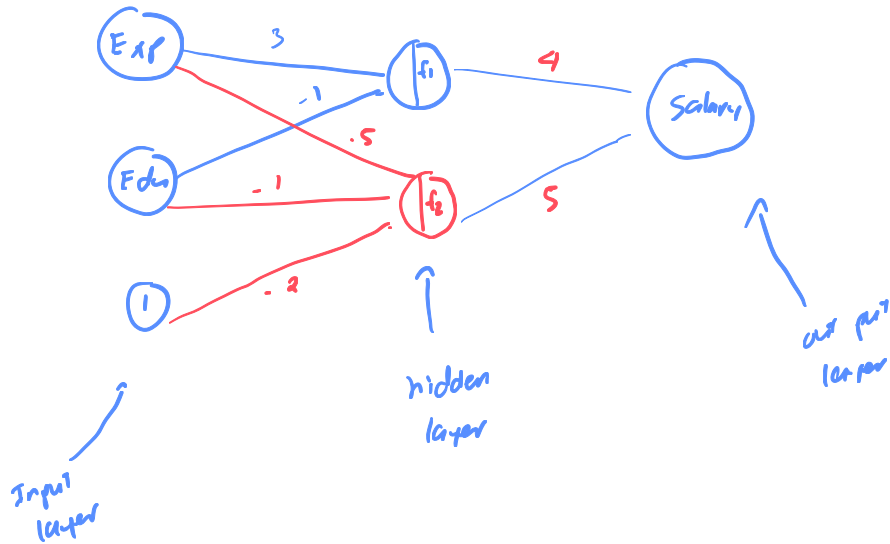
## Neural Network

$$Y = 2x_1 + 3x_2 + 5 \quad (\text{linear model})$$

$\uparrow$  Salary       $\uparrow$  Experience (Exp)       $\uparrow$  years of education (Edu)



## Model 2



$f_1, f_2$  are "activation" functions

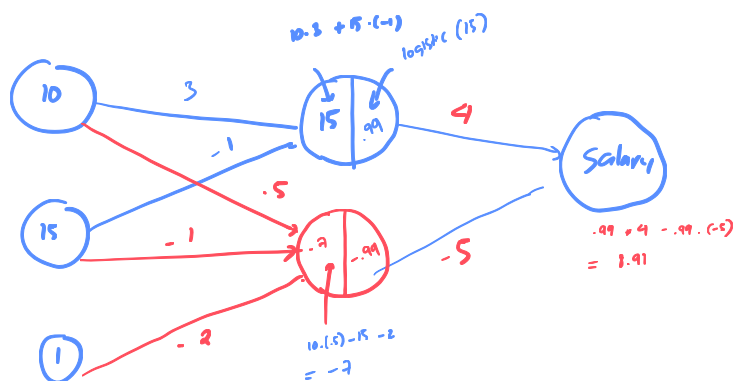
$f_1$ : logistic function

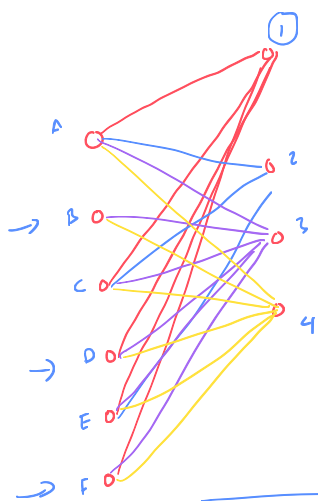
$f_2$ : tanh function.

## Calculation example

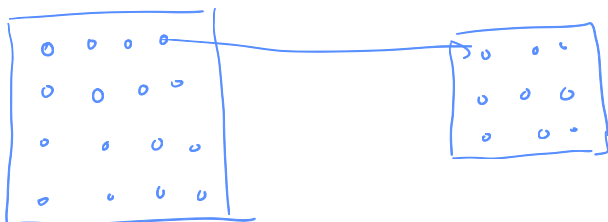
Exp = 10 years

Edu = 16





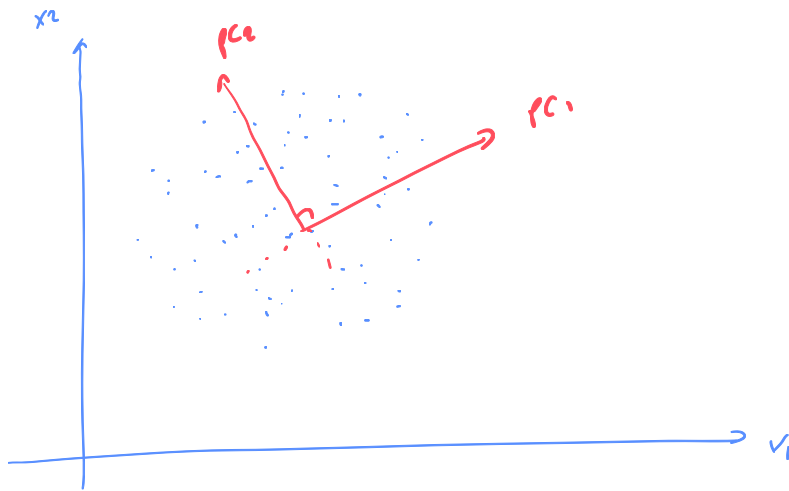
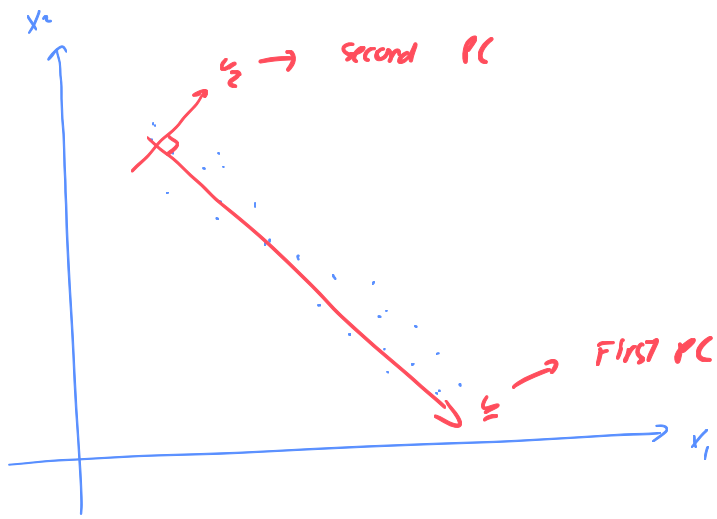
A  
C  
E  
F







# CLASS EVALUATION



In this case, PCA  
does not really help.