

# The matrix $M$

Recall that  $M[i, j] = 1$  if and only if  $j \in A_i$ .

Example: let's suppose that the first four sets are  $A_0 = \{0, 3, 5\}$ ,  
 $A_1 = \{2, 3\}$ ,  $A_2 = \emptyset$ ,  $A_3 = \{x \in \mathbb{N} : x \geq 3\}$

Let's construct  $Y \subseteq \{0, 1, 2, 3\}$  so that  $i \in Y$  if and only if  $i \notin A_i$   
for  $i = 0, 1, 2, 3$ . What is  $Y$ ?