

Project 1 (0.2 points)

- *Input:* non-zero natural number n
- *Output:*
 1. the number of partitions on a set $A = \{a_1, \dots, a_n\}$
 2. the partitions on a set $A = \{a_1, \dots, a_n\}$ and their corresponding equivalence relations (for $n \leq 8$)

Example:

- *Input:* $n = 3$
- *Output:*
 1. the number of partitions on a set $A = \{a_1, a_2, a_3\}$ is 5
 2. using the notation $\Delta_A = \{(a_1, a_1), (a_2, a_2), (a_3, a_3)\}$, the partitions on a set $A = \{a_1, a_2, a_3\}$ and their corresponding equivalence relations are:

$\{a_1\}, \{a_2\}, \{a_3\} \rightsquigarrow \Delta_A$	$\{a_2, a_3\}, \{a_1\} \rightsquigarrow \Delta_A \cup \{(a_2, a_3), (a_3, a_2)\}$
$\{a_1, a_2\}, \{a_3\} \rightsquigarrow \Delta_A \cup \{(a_1, a_2), (a_2, a_1)\}$	$\{\{a_1, a_2, a_3\}\} \rightsquigarrow A \times A$
$\{a_1, a_3\}, \{a_2\} \rightsquigarrow \Delta_A \cup \{(a_1, a_3), (a_3, a_1)\}$	

Note:

- Any (reasonable) programming language may be used.
- The solutions will consist of the source code with comments (do not send executable files!) and at least 5 relevant input and output files, and will be sent to the e-mail address: septimiu.crivei@ubbcluj.ro.
- If necessary, you will be asked to explain your solution.
- The first 25 solutions will be rewarded.
- The final deadline is January 12, 2025.