Project 1 (0.2 points)

- *Input*: non-zero natural number n
- *Output*:
  1. the number of partitions on a set $A = \{a_1, \ldots, a_n\}$
  2. the partitions on a set $A = \{a_1, \ldots, a_n\}$ 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:

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

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 14, 2024.