

## State machines

To have this assignment evaluated for the in-class exam, please upload on WeBeep a ZIP file including:

- the source code used to solve this assignment
- this file, with the table below properly filled

Name (Family + given)	Servidio Elisa
Student ID (codice persona)	10544789
QR-code ID (8 digits of the QR that was given you)	27207143
Sensing probability	0.500813
Using CPU probability	0.260352
Turning on the Heat pump	0.127636
Turning on the Air conditioning	0.111198
Sensing frequency	0.017488
State machine drawing:	
<pre> stateDiagram-v2     state "1-Sensing Temperature" as S1     state "2-Using CPU" as S2     state "3-Actuating AC" as S3     state "4-Actuating heat pump" as S4      S1 --&gt; S2: Erlang&lt;l=0.1 s-1,k=3&gt;     S2 --&gt; S1: P2-&gt;1 = 0.5     S2 --&gt; S3: P2-&gt;3 = 0.3     S2 --&gt; S4: P2-&gt;4 = 0.2     S3 --&gt; S1: returns     S4 --&gt; S1: returns     S3 --&gt; S4: turns on     </pre> <p>The diagram illustrates a state machine with four states: 1-Sensing Temperature, 2-Using CPU, 3-Actuating AC, and 4-Actuating heat pump. Transitions are labeled with probabilities and time distributions. From state 2, there are three outgoing transitions: to state 1 with probability <math>P_{2 \rightarrow 1} = 0.5</math>, to state 3 with probability <math>P_{2 \rightarrow 3} = 0.3</math>, and to state 4 with probability <math>P_{2 \rightarrow 4} = 0.2</math>. From state 1, there is a transition to state 2 labeled with the Erlang distribution <math>\text{Erlang}\langle l=0.1 \text{ s-1}, k=3 \rangle</math>. From state 3, there is a transition back to state 1 labeled "returns". From state 4, there is a transition back to state 1 labeled "returns". Additionally, there is a transition from state 3 to state 4 labeled "turns on". A green triangle symbol is placed between states 2 and 3, with the label <math>P_{2 \rightarrow 3} = 0.3</math> above it and <math>\text{Uniform}\langle a=10 \text{ s}, b=20 \text{ s} \rangle</math> below it.</p>	