<table>
<thead>
<tr>
<th>TITLE OF THE SCENARIO</th>
<th>Binary conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Keywords</strong></td>
<td>Decimal, IP, binary</td>
</tr>
<tr>
<td>Information about students?</td>
<td></td>
</tr>
<tr>
<td>Age Range and grade of the learners</td>
<td>Over 15 years old</td>
</tr>
<tr>
<td>Special characteristics of learners</td>
<td>Not applicable</td>
</tr>
<tr>
<td>The learning emphasis?</td>
<td></td>
</tr>
</tbody>
</table>
| Learning subject / field / skills or dimensions | Learning subject: Binary conversion  
Field: Computer Networks  
Skills: calculations of decimal numbers, decimal – binary transformation |
| Specific Goals | At the end of this course students will be able to:  
* transforms numbers from decimal to binary.  
* communicate  
* develop the team work skills and to increase the speed reaction  
* cooperate |
| The teaching emphasis? | |
| Learning metaphor that can support the learning objectives | Acquisition (I will transmit / present / explain content to the learners)  
Imitation (I will show to the learners how to do things related to this subject / content, i.e. I will be a model for them)  
Discovery (I will provide the necessary artifacts for the learners to find out / discover a specific concept / knowledge on their own. I will organize guiding activities and provide tips)  
Participation (I will organize sessions in which learners will discuss, share and / or collaborate for learning a specific subject / content and I will facilitate the interaction between them)  
Experimentation (I will organize activities in which learners will understand, learn how to, practice, and / or exercise) |
| Rate 0-5 | ☐ ☐ ☐ ☐ ☒ |

**Description of the game**  
Students are connected into a session, in groups of 8 persons. Each student is a “byte”. The trainer gives them a number to be converted in binary mode. Each student (after calculation) will know if it is 0 or 1. When the calculation is completed, depending on the speed reaction, they will give a short message “I’m 1” or “I’m
0°. After this, the roles (position) will be changed. This scenario can be used for groups of x*8 students, creating a competition between them, testing collaboration and cooperation, trust, and speed reaction.

**Goals**
- Learning how to transform decimal in binary
- Cooperation
- Teamwork

**Characters**
- Bytes (multiple of 8 players)
- Trainer

**Scenes**
- Park, classroom

**Narrative Description of learning activities - step by step organization and structuring**

<table>
<thead>
<tr>
<th>Learning settings</th>
<th>Estimated Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the classroom</td>
<td>15 min</td>
</tr>
<tr>
<td>In the classroom / Online / At home</td>
<td>25 min</td>
</tr>
<tr>
<td>In the classroom / Online</td>
<td>10 min</td>
</tr>
</tbody>
</table>

**Total: 50 min**

**How will I evaluate students?**
- Recorded session
- Monitoring during the game
- Performance evaluation for each student and group based on speed reaction.

**What will learners need in order to achieve learning objectives?**

**Prerequisite**
- English basic level
- Computer use – basic level, especially typewriting

**Settings and materials**
- A lab with blackboard and computers for each student
- “Binary conversion” game

**What is needed to implement the scenario?**

**Applications**
- Mandatory
  - <EUTOPIA>
  - Accounts on EUTOPIA Server
**LLP – KA3 ICT multilateral projects**

<table>
<thead>
<tr>
<th>Involved</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Infrastructure / equipment</strong></td>
<td>Mandatory</td>
</tr>
<tr>
<td></td>
<td>Internet connection</td>
</tr>
<tr>
<td></td>
<td>A computer per learner</td>
</tr>
<tr>
<td></td>
<td>A computer for trainer</td>
</tr>
<tr>
<td></td>
<td>Optional</td>
</tr>
<tr>
<td></td>
<td>LCD projector</td>
</tr>
</tbody>
</table>

**Learning Resource Type**

- Online resources
- Examples of transformation

**Time / Space resources**

- A computer lab
- Estimated time: 50 minutes

**Other things to consider**

This game is an efficient funny way to learn and practice binary transformation (conversion). Stimulates learning involving also socio-human behaviors: communication, trust and team work. This scenario can be applied in any moment of a lesson, starting with second meeting.