Preparing methodologies for the competence examination (quizzes etc.)
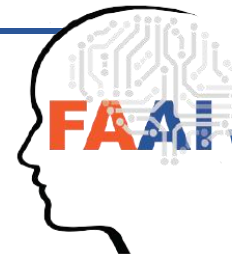
Vasyl Martsenyuk (UBB)

FAAI:
The Future is In Applied Artificial Intelligence
WP4 Teacher Training A 4.5,
Podgorica, Montenegro, 15-19.05.2023
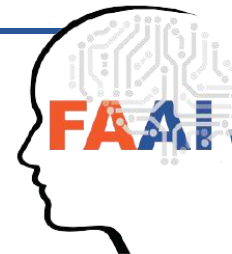### (UBB Team)

Co-funded by
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Formative Assessment

The offered methodology requires the assessment at **two levels**.

❑ At **first level** teacher has to provide the students with lesson material, knowledge and then to verify knowledge concerning large data storage and basic processing (in parallel) in context of available tools for each task. In here the student's ability to select right tool should be verified.

❑ Then **application level** is verified. The student is able to run script and understand its meaning.
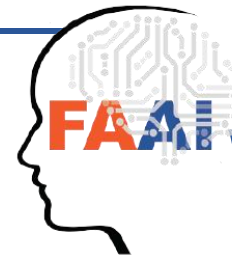
Formative Assessment

The **unit grade** is formed as a multi-component, which covers:

- ✓ knowledge of particular tool with its application case measured by the level of activity of student, while performing tasks.

- ✓ the installed environment able to run the examples pointed by teacher.

Lectures

- The lectures knowledge assessment is performed by MCQs quiz.
- Multiple questions are organized in from that covers the abilities presented in module outcomes.
- It is worth to note that questions are organized as sequence that shows the progress of trainee in lesson. This gives additional feedback to teacher at which steep the errors start to appear.
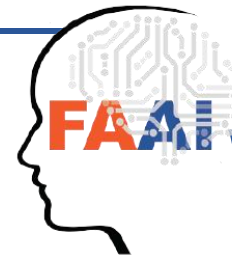
Teacher demonstration of AI software tools

The presentation of basic AI ecosystem use case given by the teacher can be verified during test and consultations. It is considered satisfactory if:

- most of the tools are known by students on knowledge level;

- students can come with conclusions, which tool should be used in specific task; task can differ from batch computing to real time processing;

- adequate analytical process to select tool was presented by student;
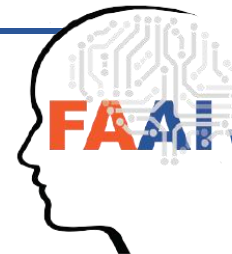
Practical tasks in a team

At this stage student should be familiar with separate AI tools, thus it is vital to verify their concepts in practice.

- ❖ The tasks should be made in teams (more than two) to take under consideration cooperation soft skills.
- ❖ The initial task should be followed by in team closed discussion.
- ❖ During team work the progress should be monitored and reported to a trainer.
- ❖ It is preferred that groups share their progress to other teams as public operational evaluation to stimulate the **competition**.
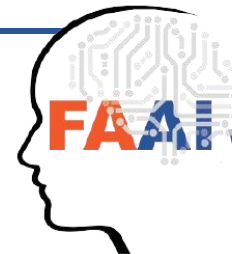
Practical task based on use case (individual)

- ❑ The installation of instances and particular operations within AI environment should be done with understanding of basic concept of AAI, which allows to provide simple modifications to a task.

- ❑ **Teacher**, based on examples, can recommend changing of training data, the model, the performance measure.

- ❑ The student must understand not only particular tool but an ML workflow of operations that are conducted within separate use case.

- ❑ Finally, the teacher should assess the final result based on the ML workflow for AAI use case, which has also **educational** effect.

- ❑ The assessment should have clear estimates to be considered by student as fair and just.
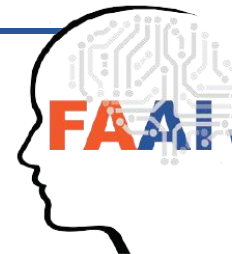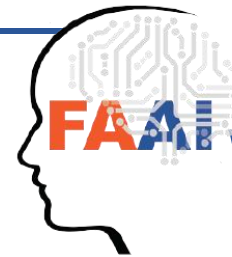
Practical tasks

During practical tasks teacher have to under consideration especially **development of:**

- **communication skills.** Group training fits naturally into the teaching of interpersonal skills. In today's World given tasks require dialogues between clients, management and other team participants. In this context the Teacher takes a role of client and roles within system can be divided within a group. It is recommended to arbitrary select a role (force students from comfort zone and at the same time allow to discover its pros and cons) and allows students to divide roles by themselves. The improvement of skills between task should be evaluated and not its level only;
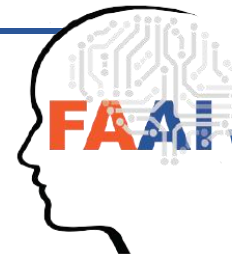
Practical tasks

During practical tasks teacher have to under consideration especially **development of:**

- **skills of critical thinking and logical thinking** should be specially treated. Students in real world will meet with new challenges and problems on daily basis. In case of data scientist, the data type can change, its characteristic can change with client's structure changes and adaptation is needed. On the other hand, the process should be constantly improved in case of performance or complexity. Thus, the task should be presented as some iteration of solutions that can always be improved or changed. This kind of approach should be stressed in grade evaluation as well.

- **risk taking and its assessment**, which is crucial I process of decision making. The data scientist should not fear to explore and find new ways of data processing. However, in case of constant product improvements one can lost its original character. Thus, in case of improving a solution to big extend, the student should be able to estimate its rate of success and what additional value it can bring to an end user. This element should also be evaluated during tasks.
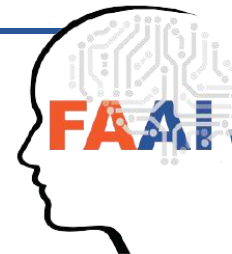
Q&A Sessions

The Q&A session is especially useful, to verify the ability of student to express its ideas and defending them. The evaluation is given in context to knowledge, skills but also one's ability to share them with others. The teacher should encourage to meaningful discussion or short impromptu speech, which should include:

- 1. The knowledge presentation (correctness of sentences, readiness, reasoning, etc.).

- 2. Drawing conclusions based on it in consideration to given topic.

- 3. Providing arguments for ask questions or counterproposals.

- 4. Demonstrate the ability of logical thinking;

- 5. Providing alternatives if previous one was neglected.

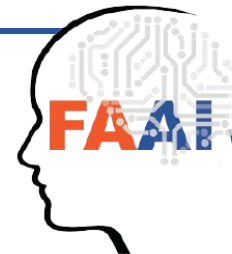- 6. Summarizing speech with final proposition.

References:

- https://social.hays.com/2019/10/04/skills-competencies-whats-the-difference/
- https://www.sac.edu/AcademicAffairs/TracDat/Pages/Competency-Based-Education-(CBE)-.aspx
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Thank you for attention!
Question??