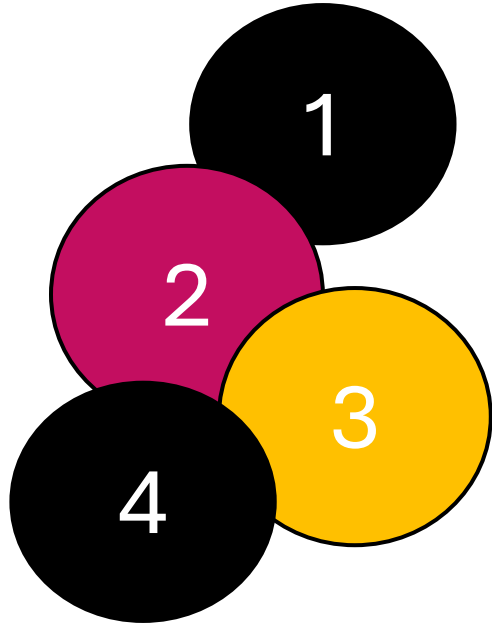


Data-Driven Policymaking: How Can AI Support Student Progression?

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WORKSHOP - STRUCTURE



Introductory presentation (15 min)

Facilitated group discussion (40 min)

Reports from the groups and discussion (30 min)

Wrap-up of the workshop (5 min)

INTRODUCTORY PRESENTATION - OUTLINE

- Student progression and dropout (literature review)
- Institutional model: internal processes and support services
- Data, sources and tools
- Machine learning models and generative AI technologies
- Anonymisation and ethical considerations
- Universal preventive measures and personalised support measures

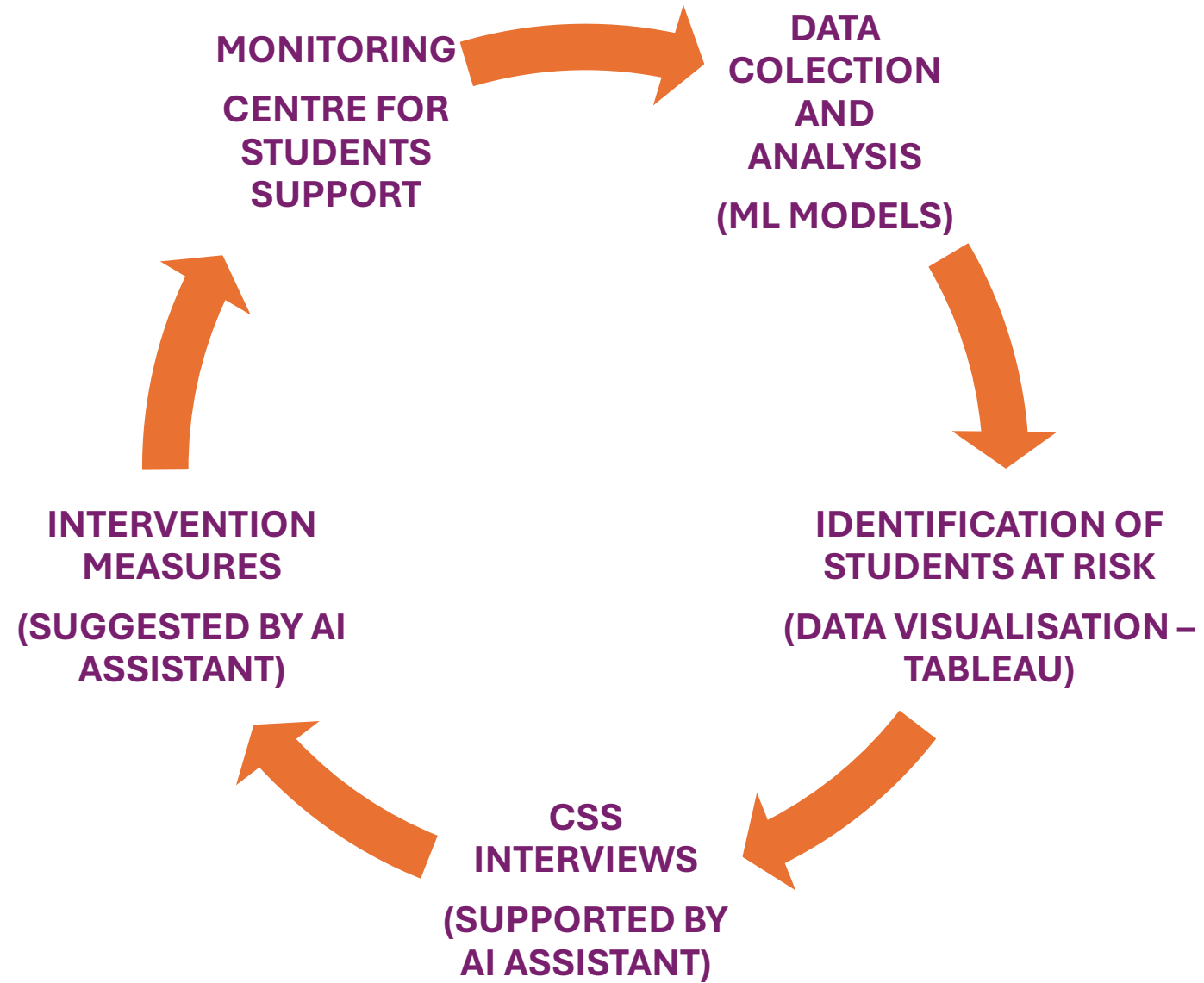
Student progression and dropout (literature review)

Researchers highlight dropout and retention factors to be highly context-dependent, varying by national education systems, entry requirements and institutional support services.

Key reasons identified for student dropout:

- Inadequate foundational knowledge and academic difficulties
- Mismatched programme choice - courses misaligned with their strengths or career aspirations
- Lack of student engagement and integration into university life (relationships with fellow students and academic staff)
- Challenges with self-regulation, organisational skills or academic independence
- Financial pressures particularly among first-generation students and those from lower socioeconomic backgrounds
- Limited institutional resources, such as inadequate academic or social support services
- Personal non-academic obstacles such as physical and mental health issues
- Individual characteristics of students such as academic ability, race, gender and prior schooling

Utilizing AI to identify at-risk indicators and support measures



Data Sources

- External data (prior education)
- Internal data warehouse
- InfoEduka – Student information system
- University services records



DATA

DEMOGRAPHIC CHARACTERISTICS

- Year of birth
- Gender
- Place of birth
- Place of prior education (town/country)

PERSONAL CIRCUMSTANCES AND ATTRIBUTES

- Support from family/friends (self-assessment)
- Work while studying (types of employment)
- Specific circumstances
- Vulnerable student groups (student-parent, migrant student, working student ...)
- Stress and anxiety level (self-assessment)
- Working and learning attitudes

SOCIO-ECONOMIC CHARACTERISTICS

- Level of mother's education
- Level of father's education
- Number of family members
- Source of funding the studies

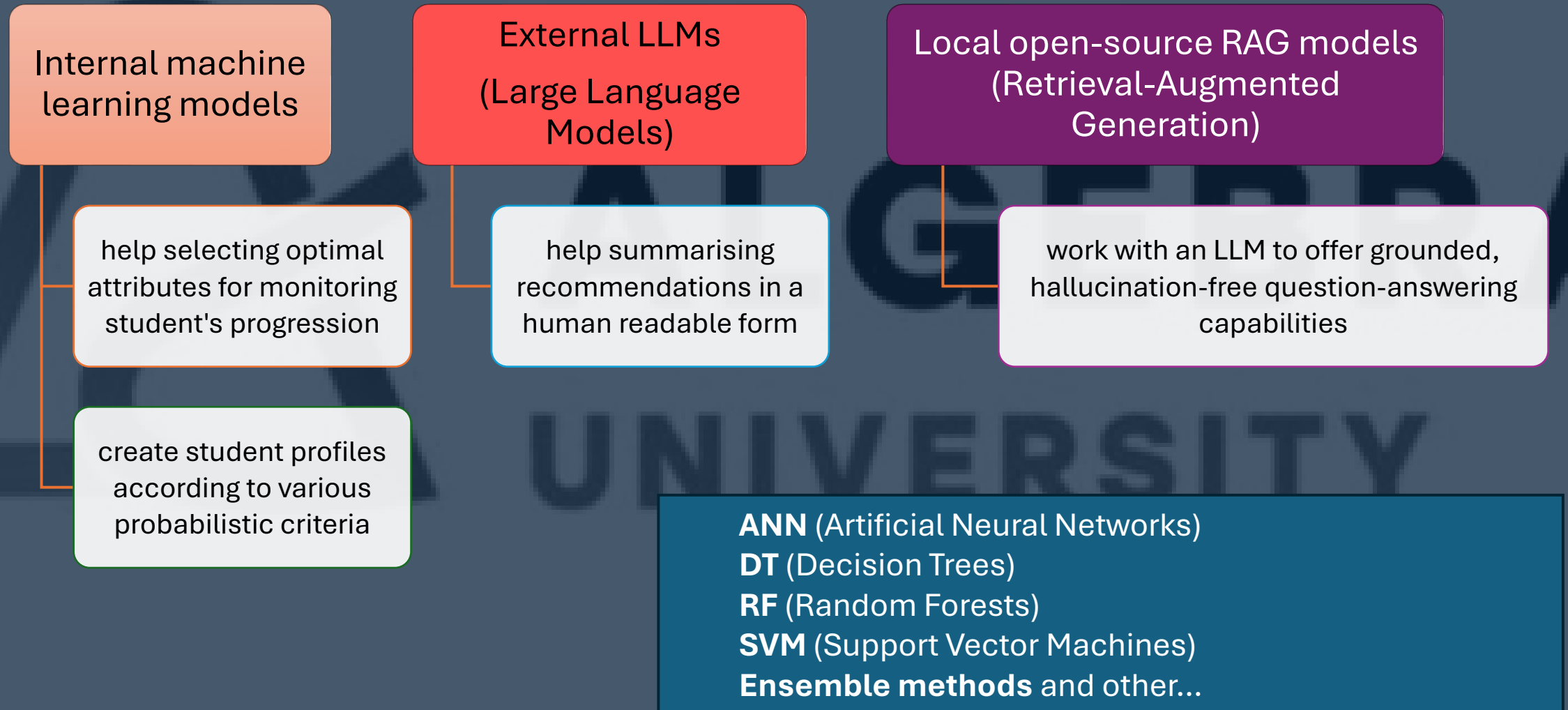
ACADEMIC CHARACTERISTICS

- Year of enrolment
- Year of study
- Field of study
- Level of study
- The language of study
- Student status (full-time/part-time)
- Class attendance
- Engagement in university activities
- Participation in extracurricular activities
- Interaction with teachers
- Satisfaction with studies
- Early academic results (quiz - Moodle, Kahoot, etc.)

PRIOR EDUCATION

- Prior secondary education (type of school, type of programme)
- Previous secondary education outcomes
- Type of higher education institution
- Prior higher education (completed)
- Prior higher education (not completed)
- Previous academic outcomes
- Admission results

AI tools and services



Anonymisation and ethical considerations

Anonymising data is crucial for protecting student privacy while allowing sensitive data to be used for analysis.

- **K-anonymity** ensures that each individual in a dataset cannot be distinguished from other individuals based on set rules and certain identifying attributes.
- **I-diversity** ensures that sensitive attributes have sufficiently different values within each group of datasets that share the same quasi-identifiers
- **Differential privacy** provides a mathematical guarantee that the inclusion or exclusion of an individual's data does not significantly affect the outcome of an analysis performed on the dataset

Personal data never enters the model training process and is never presented to the AI models!

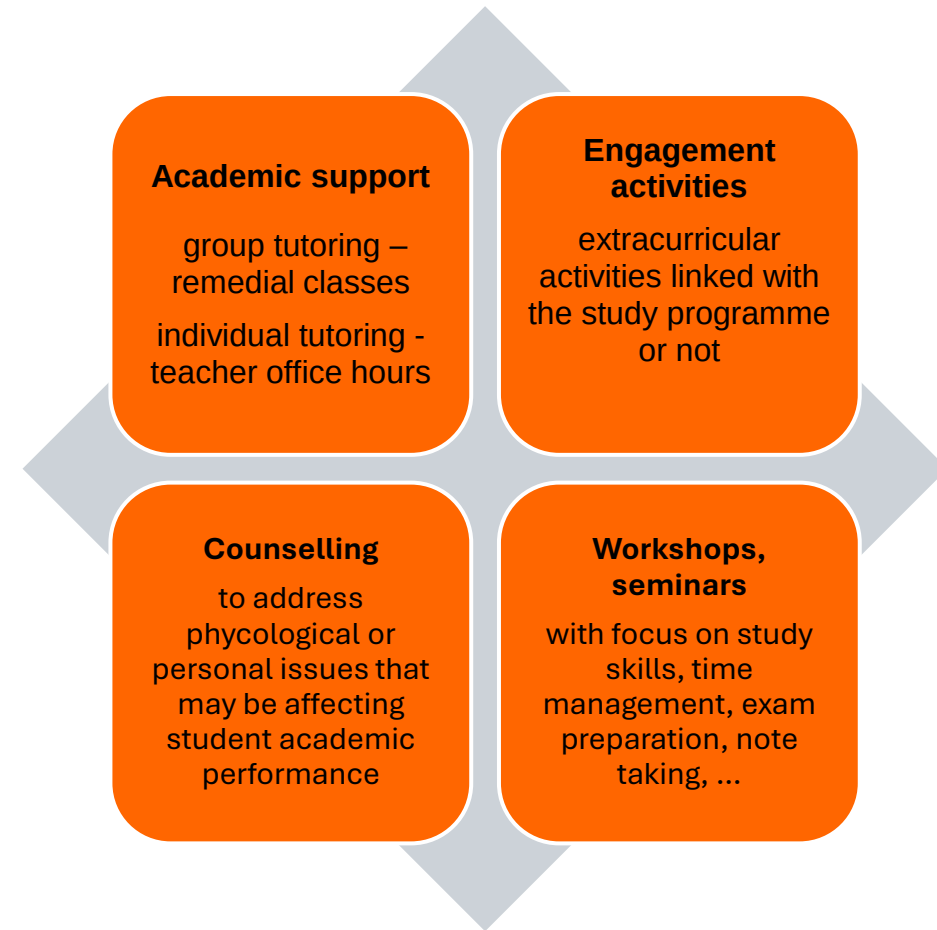
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USED BY: Student Support Centre

Universal preventive measures

- Career and study module (1st year of study, all study programmes from 2024/2025);
- Peer support - pairing students with other students who could provide academic and emotional support
- Personal guidelines to help students understand module requirements and plan their academic journey

Personalised support measures suggested by the Centre for student support by using Generative AI



Examples of AI assisting interviews with students

ACADEMIC SUPPORT

Tutoring can be helpful for students, especially in difficult subjects like programming, which Antonella is struggling with in her first year, but also throughout her education. Encourage Antonella to take advantage of the Algebra tutoring programme and tailor the academic support to her specific needs and learning style. Assess her academic progress regularly and recommend additional tutoring if she is struggling with certain topics or concepts.

ENGAGEMENT

Lucie is an Erasmus student, so adapting to a new culture, language and academic environment can be a challenge. Provide her with resources and support for cultural adjustment, language help and coping with the social aspects of university life. Bring her together with other international students to create opportunities for her to get involved in the university community.

COUNSELING

Stjepan is a first-year part-time, working student in the Multimedia Production programme. He seems to be coping well with the technology, but it is still important to address any fears or challenges he may face in the new academic environment. Encourage him to reach out if he needs help managing his workload, balancing academic demands with his personal life, or coping with stress. Give them access to relevant resources and information about student support services.

WORKSHOP

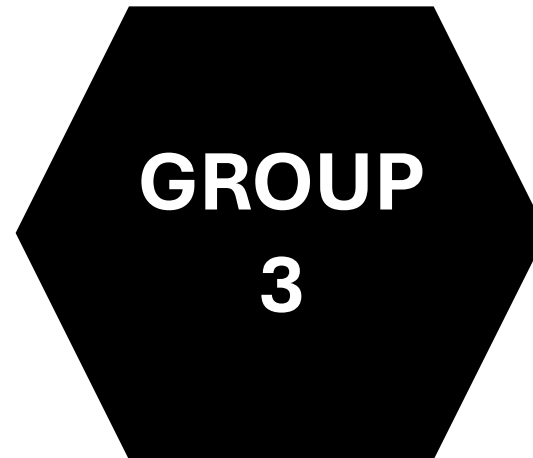
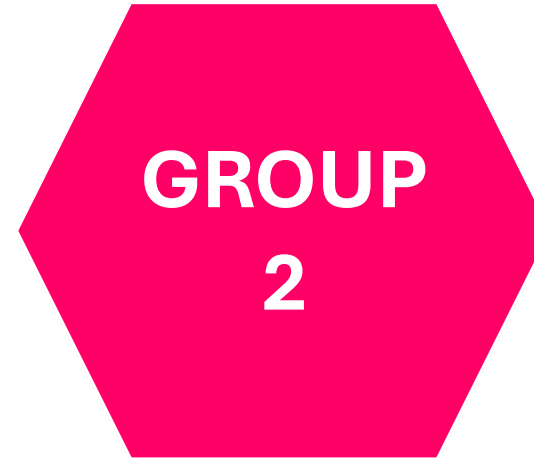
Stjepan's status suggests that he may face challenges. Approach him and offer him the opportunity to talk about his academic goals, challenges and potential concerns. Offer him information and support regarding time management, stress management and building effective study habits.

GROUP DISCUSSION

Discussion
facilitated by
Ana Tecilazić



Discussion
facilitated by
Silvija Grgić



Discussion
facilitated by
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