R3.2 AIIS challenges for students

WORKPACKAGE 3

Artificial Intelligence, Innovation & Society, the future of medicine – AIIS

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Result n° and title	R3.2 AIIS challenges for students
Full Title of the document	R3.2 AIIS challenges for students
Title of the electronic file	R3.2 AIIS challenges for students
Short Description	This working document is essential for coordinating tasks and ensuring consistency in the proposed course under this work package. It provides guidelines and information to align efforts, maintain uniformity, and promote collaboration among project partners. By streamlining the implementation process and fostering a cohesive approach, the document enhances the overall effectiveness and impact of the course.
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2.	Partner	Markeut Skills, S.L.	MEUS	Spain
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4.	Partner	University of Mons	UMONS	Belgium
5.	Partner	Xebia (formerly known as GoDataDriven/GDD)	Xebia	Netherlands
6.	Partner	University of Thessaly	UTH	Greece
7.	Partner	SciFy	Scify	Greece
8.	Partner	Turku University of Applied Sciences	TUAS	Finland
9.	Partner	University of Turku	UTU	Finland

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1.0	2023.06.13	UMONS	Modification based on partners' feedback

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Introduction

This report focuses on the development and implementation of challenges within the AIIS (Artificial Intelligence Innovation & Society, the future of medicine) educational program. As part of this program, a minimum of 10 challenges will be developed by the partnership and presented to 10 teams of students. The challenges will require collaboration from the students and provide them with an opportunity to apply artificial intelligence to solve a real-world problem.

The coordination of defining the collaborative framework and challenges is led by Xebia (formerly known as GoDataDriven/GDD), which has already played a crucial role in gathering important inputs from universities and companies so that the challenges can be based on market and societal realities.

The objective of these challenges is twofold: to assess students' proficiency in both AI knowledge and soft skills, and to provide them with an opportunity to apply the knowledge they have acquired on the learning platform. To ensure the challenges are authentic and relevant, HEIs (Higher Education Institutions), research centers, and companies will collaborate in designing these situations. Their expertise in technology, as well as their understanding of patient needs and hospital settings, will contribute to the development of meaningful challenges.

Participating in the AIIS program will require students to deliver comprehensive solutions for each challenge within a competitive scope. The program includes prizes for the best challenge presentations to encourage participants. The final phase of the program involves the presentation of challenges, assessing students' communication skills. By engaging in these challenges, students will have the opportunity to demonstrate their capabilities in addressing real-world problems using AI techniques while also showcasing their soft skills, such as teamwork, communication, and critical thinking. The challenges serve as a bridge between theoretical knowledge and practical application, allowing students to consolidate their learning and gain hands-on experience in the field of artificial intelligence and its implications in the future of medicine.

This report provides an overview of each challenge within the AIIS educational program. It emphasizes the vital role of AI and soft skills mentors in providing ongoing support to students throughout their journey. AI mentors bring their technical expertise in AI algorithms and data analysis, while soft skills mentors focus on cultivating teamwork and effective communication. The report highlights the mentors' follow-up plan, which includes regular communication and feedback sessions with student teams.

The report will provide a comprehensive description of the certification process implemented within the AIIS learning program. It will outline the significance and purpose of the certification. The report will detail the criteria and requirements for receiving the certificate, highlighting the students' achievements and contributions throughout the challenges. It will also emphasize the value of the certificate as a tangible recognition of their dedication and professional development in the AIIS community.

Conclusion:

The AIIS challenges present a unique opportunity for students to apply their AI knowledge and soft skills in real-world scenarios. Through collaboration with mentors

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from universities and companies, students will not only develop innovative solutions but also enhance their teamwork and problem-solving abilities. The certificates of participation further validate the students' dedication and serve as a testament to their commitment to professional development in the field of artificial intelligence in healthcare. The successful implementation of these challenges will contribute to the broader goals of the AIIS educational program and foster a culture of continuous learning and innovation among the participants.

1 Definition of collaborative framework and challenges

To provide students with opportunities to enhance their AI knowledge and soft skills, a total of 10 challenges will be developed by the consortium partners. Xebia will take the lead in coordinating this task, requiring input from all universities and companies involved to develop and execute the challenges effectively.

The initial phase of each challenge will involve standard data exploration, such as examining correlations between columns and identifying missing data. Subsequently, students will use data science techniques to answer a medical question based on the dataset provided. For example, they may be tasked with identifying the risk factors for stroke or predicting which patients are most likely to experience a stroke. However, the challenges will remain open-ended, allowing students to demonstrate their creativity in solving problems using the dataset.

To facilitate students' participation in machine learning tasks, Xebia will provide a guide on utilizing the AI/Data Science platform H2O. This will enable students to perform machine learning tasks without the need to code the algorithms themselves.

2 Challenges

Xebia has been collaborating with universities/partners to gather relevant datasets and ensure all necessary permissions are obtained. Using these datasets, they will then create 10 challenges, similar to the popular Data Science "Kaggle competitions," which partners can review.

These challenges will be designed to simulate real-world scenarios, providing students with an opportunity to integrate their knowledge and collaborate effectively. The challenges will align with the objectives of the AIIS program and encourage innovation and critical thinking.

These challenges will not only test students' technical abilities but also provide a platform for them to apply the soft skills they have acquired on the AIIS collaborative learning interface.

Below we outline the 10 challenge datasets and a question/problem that they could be used to solve. However, the students will be encouraged to look beyond the given problem and explore what other possibilities the datasets present too.

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2.1 Mania

At a hospital treating patients with Bipolar Disorder (Type I), medical doctors have been using the Young Mania Rating Scale to assess patients across a number of symptoms: elevated mood, increased motor activity-energy, sexual interest, sleep, irritability, speech, language-thought disorder, content, disruptive-aggressive behavior, appearance, and insight. A number between 0 and 4 is used to score if the patient is displaying the symptom; an example of an evaluation form is included. Patients are assessed at the start of the hospitalization (before treatment) and at the end of the hospitalization (after the treatment). The evaluation helps the hospital to assess how successful the treatment has been.

The main goal for this challenge will be to build a model that can classify whether an observation is before or after treatment, based on the symptom values.

2.2 Heart Attack Risk Analysis

This dataset studies the risk of patients suffering from a heart attack.

It consists of data from patients referred for coronary angiography, without previous electrocardiographic evidence of myocardial infarction, valvular disease or cardiomyopathic disease.

On one hand we have clinical and biochemical variables from patients. On the other hand, we have an “at risk” variable that describes whether the patient has a significant coronary artery narrowing, which suggests they are at risk of a future cardiovascular event.

The main goal for this challenge will be to create a prediction model that can estimate the risk of a patient suffering from a heart attack.

2.3 Framingham heart study

The Framingham Heart Study is a long term prospective study of the etiology of cardiovascular disease among a population of free living subjects in the community of Framingham, Massachusetts. The Framingham Heart Study was a landmark study in epidemiology in that it was the first prospective study of cardiovascular disease and identified the concept of risk factors and their joint effects.

In this challenge we propose to analyze with machine-learning the data from the first cohort of patients included in the study in 1948. This dataset consists of 4434 participants, with a baseline examination and up to two follow-ups, approximately 6 years and 12 years after the baseline examination. Each participant was followed for a total of 24 years for cardiovascular events.

The main goal for this challenge will be to create a machine-learning model that can predict the 10-year risk of a participant to suffer a cardiovascular event, although the challenge is open to different kinds of analysis.

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2.4 Maternal health risk

To support the care given to pregnant women, data has been collected from different hospitals, community clinics and maternal health care centers through an IoT based risk monitoring system.

The main goal for this challenge will be to investigate which health conditions are the strongest indications for health risks during pregnancy.

2.5 Heart failure

Cardiovascular diseases (CVDs) are the number one cause of death globally, taking an estimated 17.9 million lives each year, which accounts for 31% of all deaths worldwide. Heart failure is a common event caused by CVDs and this dataset contains 12 features that can be used to predict mortality by heart failure.

Most cardiovascular diseases can be prevented by addressing behavioral risk factors such as tobacco use, unhealthy diet and obesity, physical inactivity and harmful use of alcohol using population-wide strategies.

People with cardiovascular disease or who are at high cardiovascular risk (due to the presence of one or more risk factors such as hypertension, diabetes, hyperlipidaemia or already established disease) need early detection and management wherein a machine learning model can be of great help.

The main goal for this challenge will be to build a model that can classify whether a patient survived or not, based on the descriptive features.

2.6 Hepatitis C

The data set contains laboratory values of blood donors and Hepatitis C patients and demographic values like age. The data was obtained from UCI Machine Learning Repository.

The first goal for this challenge will be to build a model able that can predict whether a patient:

- is a blood donor ('0=Blood Donor' or '0s=suspect Blood Donor')
- or has Hepatitis C, including its progress ('1=Hepatitis', '2=Fibrosis' or 3=Cirrhosis')

The second goal for this challenge will be to predict the exact category a patient belongs to:

- '0=Blood Donor',
- '0s=suspect Blood Donor',
- '1=Hepatitis',
- '2=Fibrosis',
- '3=Cirrhosis'

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2.7 Stroke

According to the World Health Organization (WHO), strokes are the 2nd leading cause of death globally, responsible for approximately 11% of total deaths.

This dataset is used to predict whether a patient is likely to get a stroke based on the input parameters like age, BMI, and smoking status. Each row in the data provides relevant information about the patient.

The main goal for this challenge will be to build a model that can classify whether a patient had a stroke or not.

2.8 Diabetes

The Behavioral Risk Factor Surveillance System (BRFSS) is a health-related telephone survey that is collected annually by the Centers for Disease Control and Prevention in the U.S.A.. Each year, the survey collects responses from over 400,000 people on health-related questions, including behaviors and chronic health conditions, such as diabetes.

Diabetes is a serious chronic disease in which individuals lose the ability to effectively regulate levels of glucose in the blood, and can lead to reduced quality of life and life expectancy.

We would like to know if some of the survey questions from the BRFSS can be used to provide accurate predictions of whether an individual has diabetes. If so, we may be able to produce a short form of questionnaire that could be used to identify if someone might have diabetes or is at high risk of diabetes.

2.9 Breast cancer

The Breast Cancer Wisconsin Diagnostic Dataset contains a number of patient records describing breast mass samples, some of which are benign and some of which are malignant.

To create a record in the dataset, a digitized image is taken of a fine needle aspirate (FNA) of a breast mass. Features are then computed, which describe the characteristics of the cell nuclei present in the image.

The main goal for this challenge will be to build a model that can classify whether a sample is benign or malignant.

2.10 Fetal health

This dataset contains information extracted from fetal cardiotocograms.

Cardiotocograms (CTGs) are a simple and cost accessible option to assess fetal health, allowing healthcare professionals to take action in order to prevent child and maternal mortality. The equipment itself works by sending ultrasound pulses and reading its response, thus shedding light on fetal heart rate (FHR), fetal movements, uterine contractions and more.

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The main goal for this challenge will be to build a model that can predict fetal health using the features extracted from the cardiotocograms.

3 Enrollment and Collaboration Period

The enrollment process for challenge groups will commence on October 24th 2022, 2 weeks after the online course started, and students are required to select their preferred challenge through the AIIS collaborative learning interface by November 7th 2022. For those unable to enroll through the platform, the deadline for enrollment via the designated contact person at each university is November 14th.

Once the teams are formed, they will embark on a collaborative journey lasting approximately two months. Throughout this period, the teams will actively participate in weekly video conference calls. These calls will serve as a platform for interaction and collaboration, and they will be attended by a dedicated mentor (teacher from the university or an expert from a relevant company). The presence of these individuals will ensure the oversight of the challenge and provide technical support to the teams.

Moreover, to enhance the development of soft skills, each team will be assigned a dedicated soft skills mentor. This mentor will play a crucial role in guiding and supporting the team members as they work on their respective challenges. They will provide valuable insights and assistance in nurturing the soft skills necessary for success.

Overall, the enrollment process, collaborative period, and the involvement of teachers, experts, and soft skills mentors are integral components of the AIIS program. These elements aim to facilitate student engagement, foster collaboration, provide technical support, and enhance the development of essential soft skills.

3.1 Support System for students

Teams of transnational students will attempt to tackle one of the ten challenges that will be developed by the partner organizations.

The challenges will provide students with an opportunity to apply the knowledge they acquired through the learning platform to a real world scenario. They will be given a medical dataset and tasked with solving a genuine medical problem, using Artificial Intelligence/Machine Learning. For example, determining which factors influence the re-admission probability for patients of the psychiatric ward.

The challenges will allow students to gain practical experience of applying machine learning to healthcare related problems. It will also provide an opportunity for students to develop the "soft skills" they have learnt during the course as they collaborate with the other members in their teams.

Each group will receive:

- a medical dataset (anonymised)
- a mentor that can offer guidance on the dataset/challenge
- a mentor that can provide support with the soft-skills elements of completing the challenge

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- a question/problem that needs to be solved

However, students will be encouraged to look beyond the given problem and explore what other possibilities the datasets present too.

To complete the challenges, all students have been granted access to H2O. This is a tool that allows AI models to be trained without coding experience. It can be used to investigate the data, answer the given problem and explore any other ideas the team has about the data. A tutorial on using H2O is included for the students. Students are however free to use alternative tools, such as Neural Designer, Jasp and Jamovi.

To support the students, each group will be provided with two dedicated mentors to support both the technical and soft-skills elements of the challenges. Mentors will provide support by weekly online meetings. A member from Xebia will oversee the mentors and provide additional support where needed.

At the end of the project, the groups will be required to deliver a presentation of their results. They will need to detail their attempts to solve the challenge from a technical perspective and also evidence how they employed soft-skills during the process to aid their success.

3.2 Role and Guidelines for Mentors

Mentors play a critical role in supporting and guiding students throughout the AIIS educational program. Their expertise and guidance are essential in helping students navigate the challenges they face and develop effective solutions. In this section, we will outline the role of mentors and provide guidelines for their engagement with students.

3.2.1 AI Mentor

The AI mentor assists students in understanding and applying AI algorithms, tools, and techniques to analyze medical datasets and solve complex problems. They provide guidance on exploring the dataset, selecting appropriate machine learning algorithms, and improving model performance. The technical AI mentor's role includes:

- ✓ Assisting students in exploring the dataset, verifying feature representations, and conducting additional research related to the data and problem.
- ✓ Collaborating with students to identify suitable machine learning algorithms and performance metrics for their solutions.
- ✓ Supporting students in training and fine-tuning predictive models using tools like H2O or alternative AI software.
- ✓ Encouraging students to think critically about improving model performance, identifying important features, and exploring additional problems/questions that can be addressed using the dataset.

AI mentor received all information regarding the challenges in addition to a suggested schedule for the students working on the challenges (6.1)

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3.2.2 Soft Skills Mentor:

The soft skills mentor focuses on developing students' non-technical abilities, enhancing their teamwork, communication, problem-solving, and presentation skills. Their role includes:

- ✓ Facilitating effective communication and collaboration within student teams, encouraging active participation and constructive dialogue.
- ✓ Guiding students in the ideation phase, helping them brainstorm innovative ideas, and fostering a creative problem-solving approach.
- ✓ Providing guidance on structuring and organizing their presentations, ensuring clarity and coherence in conveying their findings.
- ✓ Promoting critical reflection on the learning process, encouraging students to identify key takeaways, challenges, and areas for improvement.
- ✓ Creating a supportive and inclusive learning environment where students feel motivated and empowered to share their ideas and perspectives.

The soft skills to be assessed during the challenge are:

- Self-knowledge and initiative
- Capacity to adapt to different situations
- Communication
- Teamwork
- Work organization
- Work ethic

The evaluation system will be based on the SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis framework (Figure 1) as a tool for student development and evaluation throughout the AIIS program. Each week, students will be required to complete a SWOT analysis, which will be reviewed by the soft skills mentor. The analysis will provide valuable insights into students' individual strengths and weaknesses, as well as identify opportunities for growth and potential threats to their progress. The SWOT analysis will play a significant role in assessing and enhancing student development within the program.

WEEK 1 – SWOT ANALYSIS

COMPETENCY	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS	FEEDBACK
	What do we do best? What unique knowledge, talent, or resources do we have? What advantages do we have? What do other people say we do well? What resources do we have available? What is our greatest achievement?	*What could we improve? What knowledge, talent, skills, and/or resources are we lacking? What disadvantages do we have? What do other people say we don't do well? In what areas do we need more training?*	*How can we turn our strengths into opportunities? How can we turn our weaknesses into opportunities? What could we do today that isn't being done? Have there been any changes around us that might affect us as a team? How can we take advantage of those changes?*	*What obstacles do we face? Could any of our weaknesses prevent our unit from meeting our goals? Who and/or what might cause us problems in the future? How?*	*To be completed by the mentor*
COMMUNICATION					
SELF-KNOWLEDGE AND INITIATIVE					
CAPACITY TO ADAPT TO DIFFERENT SITUATIONS					
TEAMWORK					
WORK ORGANIZATION					
WORK ETHIC					

Figure 1: This figure illustrates the weekly SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis for student development and evaluation.

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3.2.3 Guidelines for Mentors:

The AIIS program aims to equip students with the necessary skills and knowledge in artificial intelligence (AI) and its application in the field of medicine. Mentors play a critical role in supporting and guiding students throughout their learning journey.

To ensure mentors fulfill their responsibilities effectively and contribute to the overall success of the program, the following guidelines have been established:

1. Establish Regular Communication: Schedule regular online meetings with student teams to provide guidance, answer questions, and track progress. Align with the suggested program schedule for timely completion of challenges.
2. Offer Constructive Feedback: Provide constructive feedback to students, highlighting strengths and areas for improvement. Focus not only on technical aspects but also on soft skills development for a well-rounded learning experience.
3. Encourage Collaboration: Foster a collaborative environment where students actively engage, share ideas, and contribute to the team's success. Facilitate team-building activities and encourage leveraging each other's strengths.
4. Monitor Progress and Address Challenges: Closely monitor team progress, identifying challenges and offering timely support and guidance. Help students overcome difficulties and stay on track.
5. Promote Ethical and Responsible AI: Emphasize the importance of ethical considerations and responsible AI practices. Guide students in ensuring fairness, transparency, and accountability in their AI solutions.

By following these guidelines, mentors can effectively support students in their AIIS journey, fostering technical skills, soft skills, and overall professional development. Their guidance contributes significantly to the program's success and students' ability to tackle real-world challenges with AI solutions.

4 Final Presentation:

Upon completion of the collaboration period, each team will deliver a comprehensive presentation, showcasing their proposed solutions for the challenges. The presentation will not only highlight the collaborative efforts of the team but also emphasize their adeptness in utilizing technical and soft skills. Through this presentation, teams will have the opportunity to demonstrate their collective problem-solving abilities and effectively communicate their ideas.

This presentation acts as a significant platform for teams to showcase their capabilities, emphasizing their collaborative problem-solving skills, technical proficiency, and effective communication. It serves as an avenue for teams to effectively convey their achievements and the value derived from their collaborative efforts in tackling the challenges.

The course is scheduled to conclude on December 20th 2022. The evaluation process will assess the teams based on their proficiency in AI and soft skills (The evaluation form in annex 6.2, 6.3), and it will culminate in recognizing the teams that have excelled in these areas. The two best-performing teams will be granted prestigious prizes (**Appendix 6.4)**,

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further encouraging competition and excellence within the program, the rules of competition are here.

5 Certification

The certification aspect of the AIIS program holds significant value for the students' academic and professional development. While the regulations regarding certification may vary among the participating universities, each university will have the authority to determine the recognition and accreditation students will receive.

Some universities (UMONS, USAL, UTU and Turku) may choose to award students with 3 ECTS (European Credit Transfer and Accumulation System) based on their regulations. This credit allocation acknowledges the successful completion of the AIIS program and allows students to accumulate credits towards their academic progress.

In addition to the potential credit allocation, all students who actively participate in the challenges and successfully complete the program will receive a certificate from AIIS. This certificate serves as a testament to their involvement, dedication, and achievement throughout the program.

Determining which students completed the program is a straightforward process, as the online learning platform keeps track of that information automatically. To determine which students were actively participating during the challenges, the mentors recorded student participation during the weekly mentor meetings. In addition to this, at the end of the Challenges, the mentors for each group completed a comprehensive evaluation form so as to provide feedback for the students. The evaluation form can be seen in **Appendices 6.2 & 6.3**.

By providing certification, both in the form of ECTS credits and AIIS certificates, the program aims to recognize and validate the knowledge, skills, and competencies acquired by the students. These credentials can be valuable assets for the students as they pursue further academic endeavors or seek professional opportunities.

Moreover, the certification serves as a tangible proof of the students' active engagement in the program, showcasing their commitment to continuous learning and their willingness to go beyond the regular academic curriculum.

Overall, the certification component of the AIIS program plays a vital role in acknowledging and validating the students' participation, achievements, and the acquisition of essential skills in the field of artificial intelligence. It offers recognition both within the academic context and in the broader professional sphere, contributing to the students' personal and career growth.

Conclusion:

The collaboration framework outlined in this report provides a structured approach to interdisciplinary challenges within the AIIS program. By bringing together students from medical disciplines and AI fields, the framework promotes teamwork, integration of technical and soft skills, and the application of knowledge acquired from the online platform. The framework's emphasis on regular communication, guidance from experts,

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and mentorship ensures a supportive environment for students to excel and deliver innovative solutions. The final presentation and certification further recognize students' achievements and contributions, reinforcing their commitment to interdisciplinary collaboration and professional growth.

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6 Appendix

6.1 Mentor Information

Mentor Information

This document provides information to help the *challenge mentors* support their students.

The challenges will allow students to gain practical experience of applying machine learning to healthcare related problems. It will also provide an opportunity for students to develop the "soft skills" they have learnt during the course as they collaborate with the other members in their teams.

At the end of the course, your group will present your findings.

Students will need to detail their attempts to solve the challenge from a technical perspective* and also evidence how they employed soft-skills during the process to aid their success.

**Not being able to "solve" the problem can be a valid finding.*

Course Programme

- 19th September 2022: Enrolment opens. 14th october enrolment finishes
- 17th October 2022: Access to AI material & Soft Skills
- 24th October 2022: Challenge selection opens
- 7th November 2022: Deadline for students to be in groups and have picked their challenge
- 19th December 2022: All finished & final presentations

Action plan for the challenges

Below is a suggested schedule for the students working on the challenges. Mentors should encourage students to follow this schedule to ensure they finish the challenges in good time and are able to deliver their presentations on the final day.

Week 1 (w/c 7th November) - Data Exploration

Students should spend the first week exploring the dataset they have recieved. This could involve verifying what each feature represents and doing some additional reading around the data/problem.

Students can use tools such as Microsoft Excel or H2O to explore the data, as well as any other data tool they may be familiar with.

Week 2 (w/c 14th November) - Ideation Phase

Once students are familiar with their dataset, they can start to discuss the problems they would like to solve (students are given a question/problem that needs to be solved, but the challenges are open, meaning students are free to investigate any additional ideas too).

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During this stage, students should start to consider the types of machine learning algorithms they will implement and the metrics they will use to measure performance.

It is also a good idea for the students to discuss what kind of results they expect and which features they imagine to be most important for solving the problem. This can help to act as a sanity check during the modeling phase.

Week 3 (w/c 21st November) - Modeling phase I

Having explored their data and developed an initial plan for their investigation, students can start training predictive models on their data.

Students have been given access to H2O (https://h2o.ai/) to perform the modeling. This is a user-friendly tool that allows AI models to be trained without coding experience. It can be used to investigate the data, build predictive models and create visualisations. A tutorial on using H2O is included, but for additional technical assistance students can contact GoDataDriven.

Students should be encouraged to develop a simple, working model first, before they move on to model anything more advanced.

Week 4 (w/c 28th November) - Modeling phase II

After developing an initial model, students are encouraged to explore how they can take their project to the next level:

- Can any steps be taken to improve the model performance?
- Which features are the most important for the predictive model? Are any features redundant?
- Can any other problems be solved using this dataset?

Week 5 (w/c 5th December) - Draw conclusions & create presentations

Following the modeling phase, students should discuss any conclusions they were able to draw and start to create their presentations.

The presentations should explain:

- the dataset they recieved,
- the problem they attempted to solve,
- their approach to solving the problem and the process they followed,
- how the model performed and what metrics they achieved,
- any additional problems/questions they investigated,
- their key takeaways from the challenge and reflections on the process as a whole.

Week 6 (w/c 12th December) - Rehearsals & Review

Students should ensure that they leave enought time to practise and refine their presentations.

Time should also be set aside for students to offer constructive feedback to their fellow team members.

Week 7 (w/c 19th December) - Final presentations

During the week commencing 19th December, the students will conclude the project by delivering their final presentations.

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6.2 Evaluation form of technical skills

1 Evaluation of technical skills

Students are evaluated on the technical AI skills they have developed during the course.

	No evidence	Requires improvement	Meets expectations	Exceeds expectations	Exceptional	Comments
1. Data Exploration - Students conducted a thorough exploration of the data. - They demonstrate a good understanding of the dataset and what the features represent. - Any issues, such as missing values, are identified.						
2. Ideation and problem setting - Students attempted to solve a well-defined problem. - Their reasons for attempting to solve this problem are well explained. - Students consider whether high performance or explainability is more important for their problem context						
3. Modeling - Separate training and test sets are created from the dataset. - Students attempted to train a machine learning model to help solve their problem. - Any issues they experienced are well documented and explained.						
4. Metrics - Students chose logical metrics to evaluate their model. - The results are well presented with visualisations. - Suggestions are offered for how to improve the results they achieve.						
5. Model interpretation - Students make an effort to interpret their model. - They are able to identify the most important features for prediction. - Students reflect on whether their results and interpretation are logical.						
6. Sub-total/overall comments						

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6.3 Evaluation form for soft skills

2 Evaluation of Soft-skills

	No evidence	Requires improvement	Meets expectations	Exceeds expectations	Exceptional	Comments
Teamwork - Students took benefits of the multidisciplinarity of their team - Students were able to coordinate their work in the distance - Students are able to justify the distribution of roles among their team						
Ethics - Students questioned the ethic of their work - Students considered the question of the protection of data given for the challenge						
Organisation - Students are able to explain their choices regarding the organisation of their work						
the tools used and the solutions chosen. - Students used an online management / communication tool - Students were able to respect the deadlines and attend all meetings with the mentors.						
Sense of initiative and creativity - Students were able to consider and evaluate different points of views - Students show creativity in the solution of the challenge. - Students were able to work in relative autonomy. - Students were able to take decision and can justify their choices						
Quality of the presentation - Communication / clarity of the ideas presented						
- Verbal and non-verbal elements - Vocabulary used - Supporting materials (slides)						
Sub-total/overall comments						

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6.4 Prizes description

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RULES FOR THE CALL FOR PRIZES FOR THE AIIS PROJECT CHALLENGE ACTIVITY

1. **Purpose of the call:**

SIPPE UsalEmprende, within the European project **AIIS:" Artificial Intelligence, Innovation & Society, the future of medicine"** funded by the European Union in the call **Erasmus+ Programme - Knowledge Alliances 2020**, coordinated by the University of Salamanca and involving a total of nine partners representing 5 countries: University of Salamanca, Markeut Skills Sl, Centro de Investigación Biomédica en Red, University of Mons, Godatadriven, University of Thessaly, Epistimi Gia Sena Astki Mi Kerdoskopiki Etairia, Turku University of Applied Sciences, Turku University,

invites AIIS students who are part of the "AIIS Challenges" activity to participate in the contest to select the two best challenges. Each of the students who are part of the two challenges with the highest scores by the evaluation committee and have contributed to its development will be awarded:

- First Prize: Razer Barracuda X | RZ04-03800 Gaming headset
- Second prize: virtual reality glasses 3D VR NK NK Glasses for smartphones

These prizes are **completely free of charge** for participants.

2. **Organization**

The activity is developed through the Professional Insertion, Internships, Employment and Entrepreneurship Service of the University of Salamanca and the organizations that are part of the AIIS project consortium.

3. **Requirements and conditions for applicants**

Applicants must be participants of the AIIS Challenge activity in the framework of the AIIS Training Program. For this they have to have been evaluated as **"SUITABLE"** (have actively participated in the development of the challenge) by their technical mentor. Students with a grade of **"NOT**

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SUITABLE" (have not actively participated in the development of the challenge), will not receive the prize in the event that their team is the winner.