國立台灣大學馬來西亞校友會
Persatuan Siswazah-Siswazah Universiti Kebangsaan Taiwan, Malaysia
Alumni Association Of National Taiwan University, Malaysia
(Nombor pendaftaran: **PPM-003-10-23051973**) website:**www.aantum.co**
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Hackathon Problem: Smart Agriculture Investment Strategy

Mr. Young has decided to expand his agricultural business with an initial funding of RM10 million. Your task is to advise Mr. Young on how to best utilize this investment over the next 5 years to maximize his profits, considering the following updated requirements:

1. Land Selection and Setup

1.1 You must choose three locations for planting or farming: Cameron Highlands, Pontian, and Batang Berjuntai, Malaysia.

1.2 Decide the land size(s) and whether to use indoor or outdoor farming within the given budget. Clearly justify the choice of land sizes and cultivation methods based on factors like climate, soil conditions, potential crop yields, long-term sustainability, and cost efficiency.

1.3 Consider alternative cultivation methods (e.g., hydroponics, vertical farming, aeroponics) if suitable, and assess the impact on yield and costs.

2. Crop Choice and Planning

2.1 Select at least three types of crops or plants, with each location focusing on different crops to maximize overall profits.

2.2 Clearly explain and assess the criteria used to select these crops, including climate suitability, market demand, projected yields, potential selling prices, and other relevant factors that influence overall profitability. Consider diversification strategies like crop rotation or mixed cropping to reduce risk and improve soil health.

2.3 Clearly justify your overall planning, including various production costs (e.g., seeds, fertilizers, fungicides, pesticides, irrigation systems, etc.), projected 5-year profit calculations, initial costs, maintenance, income generated from the crop production, and anticipated market trends.

3. Technology Integration for Yield Optimization

3.1 Propose the use of AI, IoT, robotics, or other advanced technologies to improve yield per unit area, reduce operational costs, and enhance resource efficiency.

3.2 Provide a cost-benefit analysis of the proposed technologies, including potential yield improvements, reduced labor costs, and long-term profitability. Consider the feasibility of these technologies in the chosen locations.

4. Sustainability and Risk Management (Optional but recommended)

4.1 Consider factors like climate change, pest control, water management, and soil degradation.

4.2 Suggest strategies to mitigate these risks and ensure long-term profitability, such as water recycling, renewable energy use, or waste management.

5. Business Feasibility and Financial Planning

5.1 Present a comprehensive business plan, including initial investments, projected cash flow, break-even analysis, and potential ROI over 5 years.

5.2 Include realistic financial projections, such as a 5-year Profit and Loss (P&L) statement, Balance Sheet, and Cash Flow statement.

5.3 Clearly outline capital allocation, operating expenses, maintenance costs, and expected income, supported by data and realistic assumptions.

5.4 Provide risk assessments and sensitivity analyses to highlight potential challenges and contingency plans.

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FAI x SDGs Hackathon Competition 2025 – Preliminary Report Guidelines

1. The report must be written in English, using the font "Times New Roman" with a minimum font size of "11".

2. The main body of the report is limited to **15 pages**, excluding the Cover page and Appendices.

3. You need to follow the following report structure (with marks for each section)
   - **Cover page (1 page, not counted towards the 15-page limit)**
     (i) The words "AI x SDGs Hackathon Competition 2025 - Report"
     (ii) Title (Optional)
     (iii) Team name
     (iv) Members' names
     (v) School(s)
   - **Section 1: Introduction (10%)**
     ✓ **Problem Statement and Objectives**
     Clearly articulate the problem being addressed, including its context and importance. Clearly define the objectives that the team aims to achieve in solving the problem.
     ✓ **High-Level Strategy**
     Provide a concise overview of the team's overall approach to addressing the problem. This should include the main strategies considered, the technologies involved, and the expected outcomes.

- **Section 2: Tools Utilized (10%)**
  - ✓ **Comprehensive Listing of Tools**

    List all the tools, software, and platforms utilized in the project. This may include GEN AI platforms, data analysis tools, visualization software, and project management tools.
  - ✓ **Justification for Each Tool Choice**

    Provide a brief description of each tool's purpose and justify why it was chosen for this project. The explanation should demonstrate a clear understanding of the strengths and limitations of each tool in relation to the problem being solved.

- **Section 3: Initial GEN AI Output and Critical Analysis (10%)**
  - ✓ **Presentation of Initial Output**

    The original problem prompt, and the raw, unmodified output generated by the GEN AI based on the original problem prompt are to be included in **Appendix A**.
  - ✓ **Critical Analysis (Strengths, Weaknesses, Gaps)**

    Critically evaluate the initial GEN AI output, discussing its strengths, weaknesses, and limitations. Identify gaps in the response that need further refinement to fully address the problem.

- **Section 4: Improvement Strategies and Data Enhancement (20%)**
  - ✓ **Improvement Strategies**

    Clearly outline the team's approach to improving the initial GEN AI output. This may include refining the prompt, incorporating additional context, or restructuring the problem statement.
  - ✓ **Prompt Engineering and Iterations**

    Detail the prompt refinement process, including any iterations made to enhance the quality of the GEN AI responses. Provide examples where possible.
  - ✓ **Data/Context Augmentation**

    Describe any external data or research that was added to improve the quality and relevance of the output. Explain why this data was necessary and how it contributed to better results.

- **Section 5: Enhanced GEN AI Output and Analysis (15%)**
  - ✓ **Presentation of Improved Outputs**

    Include the enhanced prompt and the improved GEN AI output, reflecting all refinements made in **Appendix B**.
  - ✓ **Highlighting Improvements and Effectiveness**

    Clearly indicate the changes made from the initial output. Discuss the specific improvements and assess the effectiveness of these changes in addressing the original problem.
  - ✓ **Role and Impact of Human Touch-Up**

    Clearly explain whether there are still limitations in the improved output and the role of human touch-up in refining the response. Discuss the impact of these human adjustments on the overall quality of the output.

- **Section 6: Final Solution (25%)**
  - ✓ **Presentation of Refined Team Output**

    Present the final, polished solution developed by the team, including key insights and findings. Ensure that the solution is clear, concise, and well-organized.
  - ✓ **Integration of Advanced Technologies (AI, IoT, Robotics, etc.) and Impact**

    Propose the use of AI, IoT, robotics, or other advanced technologies as part of the solution. Evaluate how well these technologies are leveraged to improve yield per unit area, reduce operational costs, and enhance resource efficiency.
  - ✓ **Financial Viability, Risk Assessment, and Long-Term Sustainability**

    Provide a comprehensive analysis of the financial viability, potential risks, and long-term sustainability of the proposed solution. Include relevant data and projections where applicable.
  - ✓ **Use of Visual Aids and Clarity of Presentation**

    Use charts, diagrams, or other visual aids to enhance the clarity and impact of the final solution. Ensure the visuals are relevant and clearly presented.

- **Section 7: Conclusion & Reflection (10%)**
  - ✓ **Key Takeaways**

    Summarize the key lessons learned during the project, including insights on the strengths and limitations of GEN AI in solving the problem.
  - ✓ **Future Work and Improvement**

    Discuss how the team would approach similar problems in the future, including potential improvements to the tools, strategies, or methodologies used.

- **Additional Guidelines:**

(i) **Appendix A** should include the initial prompt used and the corresponding initial GEN AI output, clearly labelled for reference in Section 3.

(ii) **Appendix B** should include the improved prompt and the resulting enhanced GEN AI output, clearly labelled for reference in Section 5.

(iii) **Final Team Output:** The final, refined solution presented in Section 6 should be developed based on the improved GEN AI output from Appendix B, incorporating any necessary human refinements and strategic adjustments.

4. Marks may be deducted at the judges' discretion if a team fails to follow the above guidelines.

5. Well-written reports with comprehensive and constructive content will be selected, allowing the respective teams to proceed to the second round of the competition, the "Online Presentation" stage.

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AI x SDGs Hackathon Competition 2025 – Online Presentation Guidelines

1. Selected teams from the preliminary round will be eligible to proceed to the second round of the competition, the "Online Presentation" stage.

2. Each team will be allocated 20 minutes for the presentation, with the following time distribution:
   - **Presentation:** 15 minutes
   - **Q&A Session:** 5 minutes

3. **Submission Requirements**
   - Submit your final presentation slides (in PDF or PowerPoint format) **at least 24 hours** before the scheduled presentation.
   - Ensure the file name includes your team name.
   - The cover page of the slide must include
     - The words “AI x SDGs Hackathon Competition 2025 – Online Presentation”
     - Title (Optional)
     - Team name
     - Members’ names
     - School(s)

4. **Scoring Criteria (40 marks)**
   - **Problem Understanding and Critical Analysis (10 marks)**
     - ✓ Clear articulation of the problem and objectives.
     - ✓ Depth of analysis in refining the initial Gen AI output.
     - ✓ Justification for the selected strategies and modifications.
   - **Feasibility, Scalability, and Real-World Impact (15 marks)**
     - ✓ Practicality of the proposed planning, considering available resources and real-world challenges.
     - ✓ Consideration of long-term impact, potential scalability, and market relevance.
     - ✓ Technical achievability and impact of the proposed AI/IoT solution(s).
   - **Q&A Performance (10 marks)**
     - ✓ Ability to handle challenging questions confidently, with responses grounded in facts and report contents.
     - ✓ Demonstration of in-depth understanding beyond the prepared script.

- **Presentation Skills and Engagement (5 marks)**
  - ✓ Clear, concise, and confident delivery.
  - ✓ Effective use of examples, visuals, and storytelling to maintain audience interest.

5. Presentation Tips

. Practice your timing to ensure you cover all key points within the allocated time.

a. Use visual aids (e.g., diagrams, charts, or tables) to make complex ideas clearer.
b. Be concise and confident.
c. Engage the audience by sharing real-world examples or lessons learned during the project.
d. Prepare backup slides for common follow-up questions if time permits.

6. Twelve (12) teams from the second round will be shortlisted to participate in the offline Grand Final of the competition.

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AI x SDGs Hackathon Competition 2025 – Grand Final Guidelines

1. **Final Report Submission (100 marks):**
   - Each finalist team is required to submit a **Final Report**, modified and expanded from their preliminary report, by the stipulated deadline.
   - The **Final Report** should follow the same structure and requirements as the preliminary report, but the page limit is extended to **20 pages**, excluding the cover page and appendices.
   - Teams are encouraged to refine their initial analysis, incorporate feedback, and further develop their proposed solutions to demonstrate a comprehensive understanding of the problem.
   - The mark allocation for the final report will remain the same as that for the preliminary report.

2. **Presentation and Demonstration (60 marks):**
   - Each finalist team is required to deliver a presentation of 30 min during the Grand Final, which includes:
     - Presentation (15 minutes, 30 marks)
   - Please refer to the Online Presentation Guidelines for tips and marking criteria.
     - Demonstration (7 minutes, 20 marks)
       - Implement a simple AI or IoT scenario to illustrate one of the core concepts or modules proposed in Section 6 of their report.
       - This provides an opportunity for teams to differentiate themselves by showcasing a practical demonstration of their ideas, thereby enhancing the overall impact of their proposed solutions.
     - Q&A (8 minutes, 10 marks)

3. **Additional Tips for Grand Final Preparation:**

- **Equipment and Technical Requirements:**
  - Prepare any necessary hardware or software for your demonstration in advance.
  - Ensure your devices are fully charged or have a reliable power source.
  - Test all setups (e.g., sensors, IoT devices, software) before the Grand Final to avoid technical issues.

- **Team Coordination:**
  - Clearly assign roles within your team for the presentation, demonstration, and Q&A sessions.
  - Make sure every team member is familiar with the content and can respond to questions if required.

Good luck and enjoy the competition!