



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

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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



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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.