Graduation Project
Report One Tips and Guidelines 2024 - 2025
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The **Introduction** section, must structure the subsections as follows:

1. **Background** – Introduce the business domain and general context of the problem.
2. **Problem Statement (What, Where, How)**
    - **What**: Describe the business activities and the problem that needs a solution.
    - **Where**: Explain the environment in which the business operates (e.g., online, retail, healthcare).
    - **How**: Detail how the current procedures are performed and their limitations.
3. **People Involved (Who)** – Identify the key stakeholders, such as business owners, employees, and customers.
4. **Proposed Solution (Why, How)**
    - **Why**: Justify why the new system is needed and how it adds value to the business.
    - **How**: Give a high-level overview of how the proposed system will work to solve the problem.
5. **Objectives** – Clearly define the goals of the system and what it aims to achieve.
6. **Target Users** – Specify the end users of the system.

For the **Problem Definition** section, the main subsections can be structured as follows:

1. **Problem Statement**
    - Clearly define the problem the system aims to solve.
    - Explain why this problem is important and how it impacts users or businesses.
    - Outline the **aims and objectives** of the proposed system as a natural result of understanding the problem.
2. **Project Scope**
    - Describe the functionalities and capabilities of the system.
    - Define the boundaries of what the system **will** and **will not** cover.
    - Identify the **target market segment or audience** that will benefit from the system.
3. **Uniqueness and Innovation**
    - Highlight what makes the system different from existing solutions.
    - Explain any **new features** or improvements the proposed system offers.
    - Justify why this system is needed and how it provides added value compared to market alternatives.

- **Business Model**

This section explains how the system will create, deliver, and capture value.

1.1 Value Proposition

- What problem does the system solve?
- What benefits does it provide to customers?
- How does it stand out from competitors?

1.2 Target Customers and Market Segment

- Who are the primary users/customers? (e.g., businesses, individuals, organizations)
- What market segment does the system serve? (e.g., small businesses, students, e-commerce)

1.3 Key Activities

- What are the main processes required to operate the system successfully?
- How will the system function in daily use?

1.4 Key Resources

- What resources (technical, human, financial) are needed to develop and sustain the system?
- Do you need any partnerships or third-party services?

1.5 Key Partnerships (if applicable)

- Will the system require collaboration with suppliers, service providers, or other businesses?
- Any partnerships that will help with system growth?

1.6 Customer Relationships

- How will the system interact with customers? (e.g., direct support, automated help, community forums)
- How will customer satisfaction be maintained?

1.7 Distribution Channels

- How will the system reach customers? (e.g., website, mobile app, social media, physical stores)
- How will users access the service or product?

- **Revenue Model**

This section explains how the system will generate revenue.

2.1 Revenue Streams

- What are the main sources of income? Possible models include:
  - **Subscription-based** (e.g., monthly or yearly plans)
  - **One-time purchase** (e.g., software license)
  - **Freemium model** (free basic features with paid premium options)
  - **Advertising** (displaying ads in the system)
  - **Commission-based** (earning a percentage from transactions)

2.2 Pricing Strategy

- How will the pricing be structured? (fixed price, tiered pricing, pay-per-use, etc.)
- Will there be any discounts, free trials, or promotional offers?

2.3 Cost Structure

- What are the major costs of running the system?
  - Development costs (software, hosting, domain, etc.)
  - Maintenance costs (support, updates, security)
  - Marketing and operational costs

2.4 Break-even Analysis (if applicable)

- At what point will the system start making a profit?
- How many users or transactions are needed to cover costs?

- ## Feasibility Study

This section evaluates the project's feasibility by analyzing technical, economic, and operational aspects to ensure its successful implementation.

- **Technical Feasibility**
  This subsection assesses whether the system can be developed using available technology and resources.
  1. **Required Technologies**
     - What programming languages, frameworks, and platforms will be used? (e.g., Python, C#, React, SQL)
     - Will it be a web-based, mobile, or desktop application?
     - Hardware requirements (e.g., servers, hosting services, storage capacity).
  2. **System Integration and Compatibility**
     - Will the system integrate with existing software or databases?
     - Are there compatibility concerns with operating systems or devices?
  3. **Development Tools and Resources**
     - What tools and development environments will be used? (e.g., Visual Studio, GitHub, Firebase)
     - Any third-party APIs or external services required?
  4. **Technical Risks and Challenges**
     - Potential challenges (e.g., security risks, system scalability, data migration).
     - How will these challenges be mitigated?

- **Economic Feasibility**
  This subsection analyzes whether the project is financially viable and justifies the investment.
  1. **Cost Estimation**
     - Development costs (e.g., software licensing, hosting, domain registration).
     - Hardware costs (if applicable).
     - Maintenance and operational costs.
  2. **Potential Revenue (if applicable)**
     - Expected income from the system (if it's a business project).
     - Revenue model: subscription, advertising, transaction fees, etc.
  3. **Return on Investment (ROI) Analysis**
     - How long will it take to recover the initial costs?
     - Break-even point analysis.
  4. **Cost-Benefit Analysis**
     - Compare the estimated costs with the expected benefits.
     - Justify whether the project is worth the investment.

- **Operational Feasibility**

  This subsection assesses how well the system will work in a real-world environment.

  1. **User Readiness and Adoption**
     - Who will use the system (employees, customers, businesses)?
     - Will users require training to operate the system?
  2. **Business Process Integration**
     - How will the system fit into the existing business processes?
     - Will it replace manual processes or complement them?
  3. **Implementation Plan**
     - Step-by-step process of deploying the system.
     - Timeline for development, testing, and launch.
  4. **System Maintenance and Support**
     - How will system updates and bug fixes be handled?
     - Will there be ongoing technical support?

Project Plan

This section outlines the key activities involved in the system development and their associated timelines, resources, and dependencies.

- **Project Overview**
  This provides a high-level summary of the entire project timeline.
  1. **Project Start Date**
     - Define the official start date of the project.
  2. **Project End Date**
     - Define the official end date of the project.

- **Project Phases and Activities**
  The activities should be divided into phases based on the project development cycle. Each phase includes specific tasks, their sequence, and estimated completion dates.
  1. **Phase 1: Project Initiation**
     - **Define Project Scope**: Outline the project objectives, deliverables, and boundaries.
     - **Initial Research and Feasibility Study**: Conduct feasibility studies and gather initial data.
  2. **Phase 2: Planning and Design**
     - **System Requirements Gathering**: Collect functional and non-functional requirements.
     - **System Design**: Develop high-level design (e.g., architecture, UI/UX, database).
     - **Project Schedule Development**: Finalize the detailed project timeline and milestones.
  3. **Phase 3: Development**
     - **Software Development**: Begin coding and system development (e.g., backend, frontend).
     - **Database Development**: Design and develop database structures.
     - **Integration**: Integrate components/modules of the system.

4. **Phase 4: Testing and Quality Assurance**
    - **Unit Testing**: Test individual components or modules.
    - **System Testing**: Test the complete system for functionality and performance.
    - **User Acceptance Testing (UAT)**: Validate the system with end users to ensure it meets requirements.

5. **Phase 5: Deployment**
    - **System Deployment**: Deploy the system on the production environment.
    - **User Training**: Train end users and stakeholders on system usage.

6. **Phase 6: Post-Deployment Support and Maintenance**
    - **Monitor System Performance**: Ensure the system functions as expected.
    - **Bug Fixes and Enhancements**: Address any issues that arise after deployment.

- **Timeline and Milestones**

  A **Gantt chart** could be created using MS Project to show the planned timeline and milestones for each activity. This chart should include:

  1. **Start and End Dates for Each Task**
      - Estimated start and end dates for each activity.
      - Dependencies between tasks (e.g., Task B cannot start until Task A is completed).

  2. **Key Milestones**
      - Identify significant milestones (e.g., completion of a major project phase, delivery of a critical deliverable).

To ensure the project aligns with market needs, is applicable, and takes into account competition, students should conduct thorough **market research** and **competitor analysis**. The **main sections** and **subsections** for this process could look like this:

Market Research and Competitor Analysis

This section outlines how students should validate the market demand for their proposed system, identify key stakeholders, and analyze existing competitors to ensure their solution fills an existing gap in the market.

- **1. Market Validation**
  To confirm that the system is addressing a real need, students should meet with stakeholders and gather feedback to assess demand.

  1.1 **Stakeholder Identification**

  - **Target Audience**: Who are the primary users (e.g., businesses, consumers, specific industries)?
  - **Key Stakeholders**: Identify and meet with stakeholders such as potential customers, industry experts, or business leaders who will benefit from the system.
  - **Business Experts**: Meet with professionals or consultants with experience in the industry to gain insights into market needs and trends.
  - **Potential Partners or Investors**: Identify organizations or individuals who may be interested in funding or supporting the project.

  1.2 **Conducting Surveys and Interviews**

  - **Surveys**: Create surveys to collect feedback from the target audience about the system's proposed features and value.
  - **Interviews**: Schedule one-on-one or group interviews with key stakeholders to understand their pain points and validate the system's purpose.
  - **Focus Groups**: Organize focus groups with potential users to discuss system needs and features.

  1.3 **Market Demand Analysis**

  - **Market Size and Growth**: Research the size of the market and its growth potential. Use industry reports, research papers, or market research tools.
  - **Current Solutions**: Understand current market solutions and their limitations. Ensure that your system provides a better or unique value proposition.

- **2. Competitor Analysis**

  Conduct a detailed study of existing competitors to understand the landscape and identify your system's unique selling points.

  2.1 **Identifying Competitors**

  - **Direct Competitors**: Identify systems or businesses that offer similar solutions to your project.
  - **Indirect Competitors**: Look for alternatives that address the same problem, even if not in the same way (e.g., manual solutions, other technologies).

  2.2 **Competitive Features and Market Position**

  - **Key Features of Competitors' Systems**: Analyze the features, pricing, user experience, and functionalities of competitors' systems.
  - **Market Position**: Research how competitors position themselves in the market, such as pricing strategies, branding, and customer segments.
  - **Strengths and Weaknesses**: Evaluate the strengths and weaknesses of competitors' solutions. How can your system address the shortcomings?

  2.3 **Unique Value Proposition (UVP)**

  - **Differentiation**: Identify how your system is different from competitors (e.g., unique features, superior performance, cost-effectiveness).
  - **Innovation**: Highlight any innovative aspects of your system that competitors lack.

  2.4 **Customer Feedback on Competitors' Products**

  - **User Reviews**: Research customer reviews of competitors' systems (e.g., on app stores, websites, forums) to gather insights into what users like or dislike.
  - **Social Media and Forums**: Check discussions on social media platforms, forums, and review sites to understand how competitors are perceived by users.

- **3. Applicability of the Project**

  This subsection determines whether the proposed system can be practically implemented and used effectively in the real world.

  3.1 **Feasibility with Target Users**

  - **Ease of Use**: Evaluate how easily the target users can adopt and use the system. Consider factors such as user experience (UX) design, interface, and training needs.
  - **Adoption Barriers**: Identify potential barriers to adoption, such as resistance to change, technical limitations, or costs.

  3.2 **Scalability and Longevity**

  - **Future-Proofing**: Determine whether the system is scalable to grow with user demand and technological advancements.
  - **Sustainability**: Assess whether the system can be maintained and updated over time to stay relevant and competitive.

  3.3 **Regulatory and Legal Compliance**

  - **Compliance Requirements**: Ensure that the system complies with industry regulations (e.g., GDPR, HIPAA, financial regulations).
  - **Licensing**: Verify that all necessary software or technology licenses are in place for deployment.