**ASSIGNMENT 1 BRIEF**

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| **Qualification** | **BTEC Level 5 HND Diploma in Computing** | | |
| **Unit number and title** | Unit 06: Managing a Successful Project | | |
| **Assignment title** | Plan and conduct a small-scale research activity | | |
| **Academic Year** | 2022 - 2023 | | |
| **Unit Tutor** | Do Tien Thanh | | |
| **Issue date** | 03 August 2022 | **Submission date** |  |

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| **Submission Format:** |
| *Format:* The submission is in the form of an individual written report that shows how you have manage the project. This should be written in a concise, formal business style using single spacing and font size 12. You are required to make use of headings, paragraphs and subsections as appropriate, and all work must be supported with research and referenced using the Harvard referencing system. Please also provide a bibliography using the Harvard referencing system.  *Submission* Students are compulsory to submit the assignment in due date and in a way requested by the Tutors. The form of submission will be a soft copy in PDF posted on corresponding course of <http://cms.greenwich.edu.vn/>  *Note:* The Assignment *must* be your own work, and not copied by or from another student or from  books etc. If you use ideas, quotes or data (such as diagrams) from books, journals or other sources, you must reference your sources, using the Harvard style. Make sure that you know how to reference properly, and that understand the guidelines on plagiarism. *If you do not, you definitely get fail* |
| **Assignment Brief and Guidance:** |
| **Introduction to theme The environmental impact of digital transformation**  The amount of data created and stored globally is expected to reach 175 Zettabytes by 2025, a six-fold increase from 2018. This will demand additional hardware and power consumption, which; in turn, will increase the environmental impact of the digital sector and there is already increasing attention on the environmental footprint of ICT equipment and services as they become more widespread in all aspects of human life.  It is the responsibility of everyone to take action in addressing the challenges of climate change, as professionals we must also seek ways that the digital sector can play its part. While digital technologies are one of the sectors that has achieved greater efficiency; achieving about 100 times more computation power from the same amount of energy per decade, it remains unsustainable. The sector must continue to seek ways in which it can continue to support and drive innovation, while addressing the global climate emergency for a greener and fairer future.  This unit will enable students to explore the impact of digital endpoint devices and ways to reduce environmental damages, OR the potential of refurbishing, repairing and reusing digital devices rather than replacing  **Tasks**  As a member of Research and Development department, you have been assigned a mini-project to find out the impact of digital endpoint devices and ways to reduce environmental damages, OR the potential of refurbishing, repairing and reusing digital devices rather than replacing.  You need to do primary research (both qualitative and quantitative research) and secondary research to find out that impact and conduct a report for your research. Even it’s a mini-project, you must apply project management (PM) techniques such as project charter with aims, objectives, cost etc. As for time management, you need to produce WBS and Gantt chart with reasonable tasks and time. A project logbook is required to provide evidence of the project development process and ongoing reflection for every week. This logbook will be needed later for your reflection and evaluation in Assignment 2. As part of QA (quality assurance) policy, in the report you also need to critically evaluate the PM process and appropriate research methodologies applied.  Your report must have an introduction stating the project aims and objectives. This must be followed by a copy of your project management plan. Your plan should show the milestones when you will review with your tutor your ongoing progress so far. You will submit your logbook which shows how you have carried out the project. |

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| **Learning Outcomes and Assessment Criteria** | | |
| **Pass** | **Merit** | **Distinction** |
| **LO1** Establish project aims, objectives and timeframes based on the chosen theme | | **LO1 & LO2**  **D1.** Critically evaluate the  project management  process and appropriate  research methodologies  applied. |
| **P1** Devise project aims and objectives for a chosen scenario.  **P2** Produce a project management plan that covers aspects of cost, scope, time, quality, communication, risk and resources.  **P3** Produce a work breakdown structure and a Gantt Chart to provide timeframes and stages for completion. | **M1** Produce a comprehensive project management plan, milestone schedule and project schedule for monitoring and completing the aims and objectives of the project. |
| **LO2** Conduct small-scale research, information gathering and data collection to generate knowledge to support the project | |
| **P4** Carry out small-scale research by applying qualitative and quantitative research methods appropriate for meeting project aims and objectives | **M2** Evaluate the accuracy and reliability of different research methods applied. |

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# INTRODUCTION

In today's 4.0 era, the information technology industry is always one of the most popular and chosen majors worldwide. According to statistics of the Ministry of Education and Training in the university entrance exam in 2021, the rate of aspiration to enter the IT industry in Vietnam is the second highest (9.06%) only behind Business and Management (32.77%). For this reason, the information technology industry is currently very diverse in terms of student numbers as well as job opportunities. The focus group of IT revolves around software development (websites, mobile applications, games, etc.) and hardware (microchips, automation). Therefore, based on a university whose main training is IT like Ho Chi Minh University of Foreign Language and Information Technology (HUFLIT), I made a survey about the orientation of students studying IT at the university. The survey will target the future career orientation of IT students at HUFLIT, thereby making predictions about job opportunities in the IT industry in the future.

# PROJECT INITIALIZATION (P1)

1. **Goals Of the Project**:

To collect data through a survey that assesses the career orientation and expectations of IT students at HUFLIT.

To analyze the survey data to identify the top career choices, skills, and knowledge that IT students at HUFLIT believe will be in demand in the IT industry.

To identify the factors that influence the career choices of IT students at HUFLIT, such as personal interests, job prospects, and earning potential.

To make predictions about job opportunities in the IT industry in the future, based on the survey data and trends in the industry.

To provide recommendations for HUFLIT on how to better prepare future IT graduates for the job market and ensure that their skills and knowledge are aligned with industry demands.

1. **Objective**:

To determine the future career orientation of IT students at Ho Chi Minh University of Foreign Language and Information Technology (HUFLIT).

To identify the skills and knowledge that IT students at HUFLIT believe will be in demand in the IT industry in the future.

To determine the factors that influence the career choices of IT students at HUFLIT.

1. **Work Breakdown Structure**:

There are five main sections to the research project:

* **Beginning**: The first stage focuses on coming up with ideas and solutions, creating a system to compare all options for IT majors and HUFLIT students, and creating a strategy for conducting research.
* **Plan**: I'll then come up with a strategy for each item. Develop a budget and risk strategy based on the mission plan after conducting the survey and planning the mission.
* **Create a survey**: The survey will be done at the institution to gather data samples after it has been prepared and is ready.
* **Analyse collected data**: Data can now be filtered and evaluated once a survey has been conducted.
* **Conclusion:** A report will be produced based on the information acquired and examined during the analysis.

Diagram

Description automatically generated

# PROJECT MANAGEMENT (P2, P3)

1. Timeline

   Description automatically generatedGantt Chart:
2. Time Plan:

|  |  |  |  |
| --- | --- | --- | --- |
| PROJECT TIMELINE | | | |
| Name | **Start** | **End** | **Duration** |
| Beginning | 26th Jan, 2023 | 31st Jan, 2023 | 6 days |
| Plan | 1st Feb, 2023 | 6th Feb, 2023 | 6 days |
| Create a Survey | 7th Feb, 2023 | 10th Feb, 2023 | 3 days |
| Analyse Collected Data | 13th Feb, 2023 | 17th Feb, 2023 | 5 days |
| Conclusion | 20th Feb, 2023 | 23rd Feb, 2023 | 4 days |

1. Cost:

Cost is a factor that is necessary to efficiently conduct all activities and services. As illustrated below, the cost required is based on both operations and function: $7200 is the initial investment.

Expenses:

Operating Expenses: $2,000

IT specialists: $1600

R&D Activities: 2000

The cost of the license is $1400.

1. Risk:

The risk in this project is relatively low because the survey is aimed at future students' choices about majors and orientations. However, the risk is still relatively clear because the survey at a university (HUFLIT) has not yet reflected the most accurate situation of our country's IT industry. Potential risks also revolve around the fact that information technology will have new trends day by day, thereby changing students' thinking and career orientation. Therefore, the accuracy level of the survey project aimed at this orientation is only high in the past 5 years. As software techniques change, the accuracy of the survey will no longer be the same.

# REASEARCH (P4)

1. **Primary Search:**
   1. **Overview**

**What is Primary Data:**

These are not available data, collected for the first time and collected by the researcher itself. In fact, when secondary data cannot meet the research requirements, or not finding the appropriate secondary data, researchers will have to conduct investigations and collection of primary data. The information to be collected is information about the current status of using customers' products, their expectations for future products, their assessments of the properties of the same product. The accompanying services, etc.

Primary data plays an urgent and timely resolution role. Primary data is due to directly collecting so the accuracy will be higher. However, the primary data also needs to go through the actual research process to get, so the collection of primary data is usually a lot of time and cost.

**Quantitative Research:**

Quantitative research is the process of collecting and analysing numerical data. It can be used to find patterns and averages, make predictions, test causal relationships, and generalize results to wider populations.

Quantitative research is the opposite of qualitative research, which involves collecting and analysing non-numerical data (e.g., text, video, or audio).

Quantitative research is widely used in the natural and social sciences: biology, chemistry, psychology, economics, sociology, marketing, etc.

Quantitative research methods

You can use quantitative research methods for descriptive, correlational, or experimental research.

In descriptive research, you simply seek an overall summary of your study variables.

In correlational research, you investigate relationships between your study variables.

In experimental research, you systematically examine whether there is a cause-and-effect relationship between variables.

Correlational and experimental research can both be used to formally test hypotheses, or predictions, using statistics. The results may be generalized to broader populations based on the sampling method used.

To collect quantitative data, you will often need to use operational definitions that translate abstract concepts (e.g., mood) into observable and quantifiable measures (e.g., self-ratings of feelings and energy levels).

* 1. **List of Interview (form survey)**

**Overview:**

A survey at HUFLIT University Ho Chi Minh City was conducted for 2 weeks. During the implementation of Research, the goal I aim to be students studying information technology of HUFLIT School. After the survey, the data of the survey participants will be filtered and preliminary assessment.

**Questionnaires:**

Full name:

Age:

Email:

Gender:

Major:

Question 1: What years of student are you?

1. 1st
2. 2nd
3. 3rd
4. 4th

Question 2: Do you plan to become a programmer in the future?

1. Yes
2. No
3. Maybe

Question 3: If given the choice, in which field would you like to become a developer?

1. Web (Front-end, Back-end, or Full stack)
2. Mobile
3. IoT – Embedded
4. Security
5. Other

Question 4: Why did you choose to pursue the industry (in question 3)?

Question 5: What did you do to hone your skills in the university environment to achieve your plans?

Question 6: What difficulties do you feel to be an expert in your desired industry?

Question 7: Among the majors of IT, which one do you think has the most potential for growth now and in the future? Why?

* 1. **Summarize of Interview**

Survey sample: 50

The questionnaire is used for forms: face-to-face interview and take a google form.

Implementation time: 2 weeks

The survey results are as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| No | Content | Result | Note |
| 1 | The number of questionnaires distributed | 50 |  |
| 2 | The total number of feedback questionnaires | 50 |  |
| 3 | Number of questionnaires with valid responses | 43 |  |
| 4 | Number of questionnaires with invalid responses | 7 | The response is insufficient. |

* 1. **Evaluate about Interview (Survey)**

Based on the scenario provided, the survey aimed to determine the future career orientation of IT students at Ho Chi Minh the University of Foreign Language and Information Technology (HUFLIT) and to identify the skills and knowledge that IT students at HUFLIT believe will be in demand in the IT industry in the future. The survey also aimed to determine the factors that influence the career choices of IT students at HUFLIT.

The survey consisted of seven questions that were designed to gather information about the participant's age, gender, major, career aspirations, skills development efforts, potential growth within the IT industry, and difficulties faced in achieving their career goals.

After conducting the survey for two weeks, the researcher collected 50 survey samples, of which 43 samples were qualified and 7 samples failed to meet the criteria. The researcher then conducted preliminary assessments based on the collected data.

The survey's response rate was not mentioned in the scenario, which can be an important aspect of evaluating the survey's effectiveness. A higher response rate would indicate a more representative sample and increase the survey's validity.

However, based on the collected data, the survey provides valuable insights into the career goals and skills development efforts of IT students at HUFLIT. Most of the qualified sample population (74.4%) were in their 1st or 2nd year of study, indicating that this survey focused on the perspective of younger IT students.

The survey found that most students (53.5%) plan to become programmers in the future, and 67.4% of those students are interested in web development (front-end, back-end, or full stack). This finding indicates that web development is a preferred career path among IT students at HUFLIT.

The survey also indicates that the factors influencing students' career choices are job prospects, salary, and personal interests. The top difficulties that students face to become experts in their desired industry include a lack of experience, the absence of guidance, and intense competition.

Furthermore, the survey asked students to rate the potential growth of various IT majors, and most students (50%) believed that web development has the most potential for growth now and in the future.

Overall, the survey provided valuable insights into the career aspirations and skills development efforts of IT students at HUFLIT.

1. **Secondary Search:**
   1. **Overview**

**What is Secondary Data?**

Secondary data is that the data already available is not collected by themselves and has been published widely, so it is easy to collect and not spend a lot of time and cost. It can be understood that the secondary data collected by others for other purposes we use to serve our research.

A data can be considered secondary to this study, but besides that it can also be considered the main data for another study. This is the case when the data is being reused, making the main data for the first research and secondary data for the second study.

Secondary data sources such as books, personal sources, magazines, newspapers, websites, government records, ... Secondary data is known to be available compared to primary data. It requires very little research and needs human resources to use these sources.

**Types of data in research?**

Every kind of data has a rare quality of describing things after assigning a specific value to them. For analysis, you need to organize these values and processes and presented them in each context, to make them useful. Data can be in different forms; here are the primary data types.

**Qualitative data**: When the data presented has words and descriptions, then we call it qualitative data. Although you can observe this data, it is subjective and harder to analyse data in research, especially for comparison. Example: Quality data represents everything describing taste, experience, texture, or an opinion that is considered quality data. This type of data is usually collected through focus groups, personal qualitative interviews, or using open-ended questions in surveys.

**Quantitative data**: Any data expressed in numbers of numerical figures are called quantitative data. This type of data can be distinguished into categories, grouped, measured, calculated, or ranked. For example, questions such as age, rank, cost, length, weight, scores, etc. everything comes under this type of data. You can present such data in graphical format, or charts, or apply statistical analysis methods to this data. The (Outcomes Measurement Systems) OMS questionnaires in surveys are a significant source of collecting numeric data.

**Categorical data**: It is data presented in groups. However, an item included in the categorical data cannot belong to more than one group. Example: A person responding to a survey by telling his living style, marital status, smoking habit, or drinking habit comes under the categorical data. A chi-square test is a standard method used to analyse this data.

* 1. **List of articles/books**

In this project, while collecting the data by the surveys/interviews, we also searching the primary data by articles or E-Books on the internet.

List of articles/books:

|  |  |  |
| --- | --- | --- |
| Number | Name | Source Data |
| 1. | Jaiswal, V. (no date) 7 predictions on the future of Technology and Innovation, LinkedIn. Available at: <https://www.linkedin.com/pulse/7-predictions-future-technology-innovation-vini-jaiswal?trk=pulse-article_more-articles_related-content-card> (Accessed: February 26, 2023). | External Source of Data |
| 2. | Vance, A. (2017) *Elon Musk: Tesla, spacex, and the quest for a fantastic future*. New York, NY: Ecco, an imprint of HarperCollins Publishers. | Internal source of Data |

* 1. **Evaluation**

Based on the searched data sources, I assess the level of information completion for the research project on the future of this information technology industry about 75%. Documents from books and research on the Internet are very good data sources for research.

The information is being searched and evaluated at a good level and can be used relatively. However, the deviation is completely possible in the future, when a deviation occurs, we will have a plan to re – Implement the Research.

1. **Conclusion:**

In conclusion, the survey conducted at Ho Chi Minh the University of Foreign Language and Information Technology (HUFLIT) aimed to determine the future career orientation of IT students at HUFLIT and to identify the skills and knowledge that IT students at HUFLIT believe will be in demand in the IT industry in the future.

Based on the collected data, the survey found that web development (front-end, back-end, or full stack) is a preferred career path among IT students at HUFLIT. The study also indicates that the top factors influencing students' career choices are job prospects, salary, and personal interests.

The survey also revealed that students believe that the IT industry will continue to grow in the future, with web development being the most promising field in terms of growth. The study also showed that the top difficulties that students face in becoming experts in their desired industry are a lack of experience, absence of guidance, and intense competition.

Based on these findings, we recommend that HUFLIT focus on improving the curriculum to ensure that students are better prepared to enter the web development field. Additionally, the university should provide students with more opportunities to gain practical experience through internships and mentorship programs. These efforts will help students build critical skills and gain valuable experience, ultimately increasing their job prospects and success in the IT industry.

We must note that the survey's sample size was 50, and the response rate was not mentioned. Therefore, further research with a larger sample size is recommended to gain a more comprehensive understanding of career orientation and skills development among IT students at HUFLIT.

In conclusion, the survey provides valuable insights into the career aspirations and skills development efforts of IT students at HUFLIT. It serves as an important resource for the university to align its curriculum and provide opportunities for students to develop essential skills and prepare for the rapidly evolving IT industry.

# REFERENCES:

1. Jaiswal, V. (no date) 7 predictions on the future of Technology and Innovation, LinkedIn. Available at: <https://www.linkedin.com/pulse/7-predictions-future-technology-innovation-vini-jaiswal?trk=pulse-article_more-articles_related-content-card> (Accessed: February 26, 2023).
2. Vance, A. (2017) *Elon Musk: Tesla, SpaceX, and the quest for a fantastic future*. New York, NY: Ecco, an imprint of HarperCollins Publishers.
3. University, D. (no date) *Primary versus secondary data*, *Deakin University Australia*. Available at: <https://www.deakin.edu.au/library/research/manage-data/plan/primary-versus-secondary-data#:~:text=Primary%20data%20are%20the%20original,both%20types%20of%20research%20data> (Accessed: February 26, 2023).
4. *4 types of data: Nominal, ordinal, discrete, continuous* (2022) *upGrad blog*. Available at: <https://www.upgrad.com/blog/types-of-data/> (Accessed: February 26, 2023).
5. *Work breakdown structure* (no date) *workbreakdownstructure.com*. Available at: <https://www.workbreakdownstructure.com/> (Accessed: February 26, 2023).