

## **ASSIGNMENT: TWT2231- WEB TECHNIQUES AND APPLICATIONS**

### **GENERAL GUIDELINES**

This is an **individual assignment** involves the developing of simple web-based system using the selected languages and tools.

**Assignment Title: Air Quality Insights for Southeast Asia: A Web-based Platform for Data Visualization and Public Awareness**

#### **Description:**

Air pollution stands as a significant threat to the health and well-being of modern societies. Natural sources, such as emissions from sea surfaces, forested areas, and soil dust, contribute to the overall burden of air pollutants. Beyond natural sources, a range of human-made activities significantly impact air quality. These include emissions from motor vehicles, industrial facilities, and the burning of biomass, all of which can contribute to elevated levels of air pollutants in the surrounding environment.

The 19th century's industrial boom marked a turning point for air pollution. Human-made sources now dominate pollutant levels in the environment, leading to a sharp decline in air quality. Since polluted air can trigger various health issues, it's vital to effectively communicate the seriousness of air pollution in specific regions to both the public and policymakers. Southeast Asia, a region comprised of 11 countries (Brunei Darussalam, Cambodia, Timor-Leste, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam), faces challenges related to air quality. This report examines the Air Quality Index (AQI) and air pollution data for Southeast Asia, offering insights into the current state of the region's air quality. The report also explores potential future scenarios based on air pollution trends and provides recommendations for mitigating air pollution challenges in Southeast Asia.

For a city or country to be classified as moderately polluted, the PM2.5 reading must fall within the range of 12.1 to 35.4  $\mu\text{g}/\text{m}^3$ . While Malaysia's annual average positions it towards the lower end of this moderate spectrum, there are months with rapid pollution spikes. Therefore, it's crucial to consider both the yearly average and these peak periods when evaluating air quality, as well as investigating the causes and potential mitigation measures. Compared to other Southeast Asian countries, Malaysia actually performs significantly better.

## ASSIGNMENT DETAIL

1. Students need to implement the concept of web techniques and its applications includes HTML5, CSS3, and Java Script etc. that you learn in this subject.
2. Students must come up with user-friendly interface. Marks also will be given for creative interface.
3. Student need to handle all the possible errors with meaningful error messages. Any error that terminates the program or shows invalid output will cause deduction in marks.
4. **Don't copy any codes from others.**

## ASSESSMENT

- This assignment carries **20%** of your total coursework marks. Your assessment will be broken into two parts, Part A and B.
- Part A carries 40% of your total project marks. Your task is to write a report on the design and development of your assignment. The report should contain the following information. This is just the basic guideline for your report but you can provide additional information where you feel necessary:
  - System Requirement
    - Outline the aim and objective of system
    - Clarify potential user and specific requirement
    - Evaluate the required hardware, software platform
    - Consider delivery platform – running on network or stand alone
  - Design Issues (provide the appropriate interface design(s) that are applicable to your assignment)
  - Implementation
    - Coding
  - Evaluation
    - Evaluate whether it meets the aims and goals of your proposed system
- Lastly, Part B carries 60% of your total assignment marks. **Each individual need to submit maximum 5-10 minutes video or video link to present his/her assignment.**

- This project will be evaluated according to the following criteria:
  - Significance of creativity
  - Addressing assignment requirement
  - Additional features added to assignment
  - Good design (comprehensive and accurate solution)
  - Presenting in a clear and cogent manner – report and presentation
  - Showing effective use of languages
- This project will be evaluated according to the following Assessment category:

| Assessment category                                                         |
|-----------------------------------------------------------------------------|
| a). Softcopy report (25%)                                                   |
| i. Introduction / Objectives/Scope/Contribution/Conclusion                  |
| ii. Choice of web components (i.e., HTML5, CSS, and Java Script etc.)       |
| iii. Screen shot                                                            |
| iv. Important Source code                                                   |
| v. Softcopy of source codes and all documentation<br>(in doc file) attached |
| b). Source Code (15%)                                                       |
| i. Style                                                                    |
| Indentation, choice of variable and function names                          |
| Proper self-documentation                                                   |
| ii. Use of HTML5, CSS, Java Script etc.                                     |
| iii. Modularity                                                             |
| iv. Error reporting capabilities                                            |
| c). Programme Execution (60%)                                               |
| i. Execution/Run without errors                                             |
| ii. Interface Design                                                        |
| iii. User friendly                                                          |
| iv. Error free during runtime                                               |
| v. Full fill all the requirements for the project                           |
| Total marks (100%)                                                          |

## REPORT FORMAT

You have to submit **softcopy** containing the following:

1. Introduction about your system.
2. Objectives of the assignment
3. Scope of the assignment
4. Contribution of the assignment
5. Conclusion
6. Appendices:
  - i) Source code
  - ii) Sample interface screen
  - iii) Sample input /output screens
  - iv) Softcopy of the whole documentation in **Doc format and PDF format.**

## DUE DATES

**Soft copy Report submission: By 12 June (Wednesday) 2024 4:00pm.**

Submit a softcopy report (documentation of your assignment), programme codes and video of your assignment to your respective lab tutor.