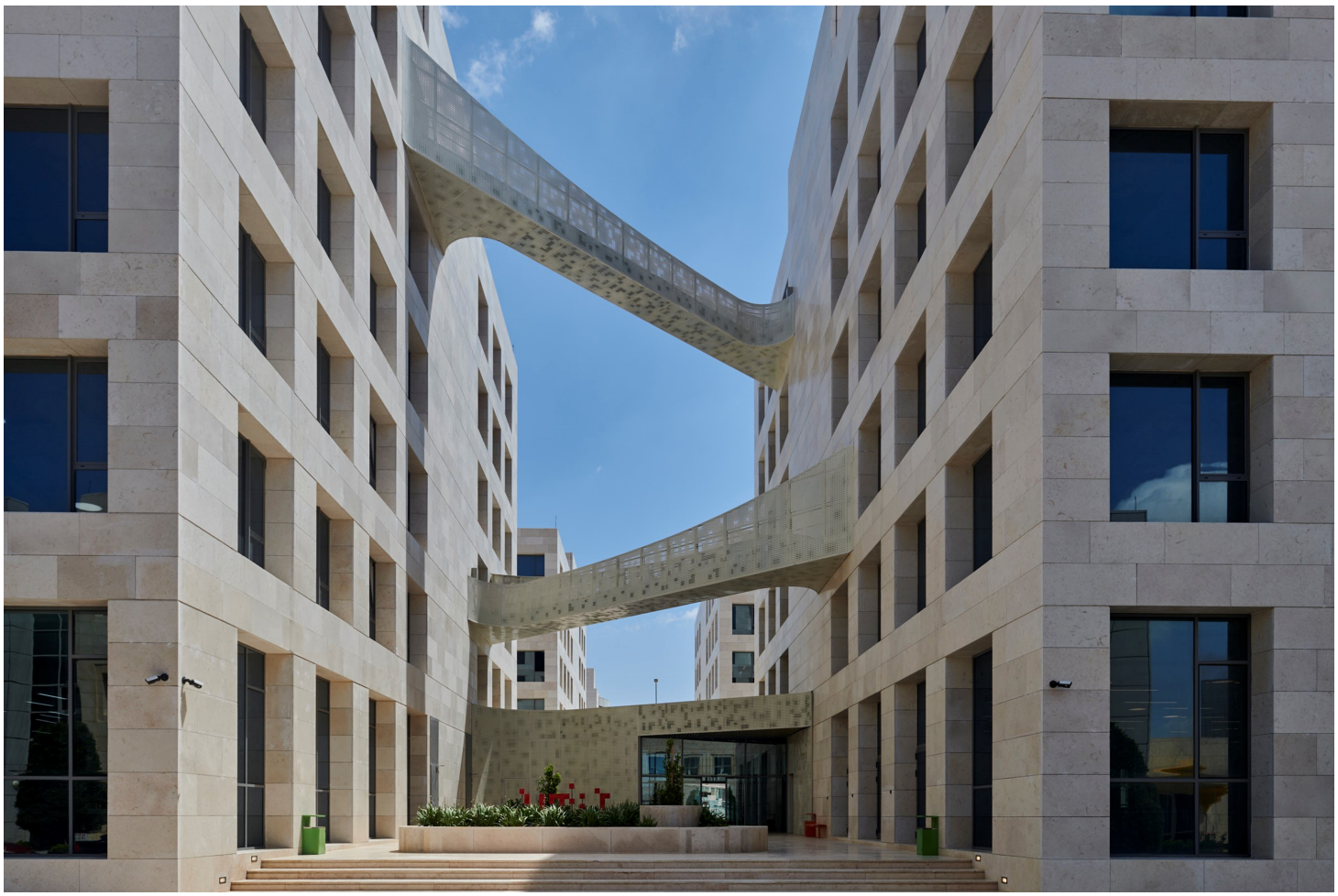
جامعة الحسين التقنية
Al Hussein Technical University

ASSIGNMENT BRIEF

HTU Course No: 30202232	**HTU Course Name:** Data Mining
BTEC Unit Code: H/615/1653	**BTEC UNIT Name:** Data Mining

Version: 3



Student Name/ID Number/Section	
HTU Course Number and Title	30202232 Data Mining
BTEC Unit Code and Title	H/615/1653 Data Mining
Academic Year	2023-2024 Fall
Assignment Author	Raneem Qaddoura
Course Tutor	Raneem Qaddoura - Bassam Al-Kasasbeh
Assignment Title	Analyze and Implement data mining application
Assignment Ref No	2
Issue Date	31/12/2023
Formative Assessment dates	From 01/01/2024 to 11/01/2024
Submission Date	30/01/2024
IV Name & Date	Aisha Al-Sadi 30/12/2023

Submission Format

Part 1: In-Class Examination

- In-class closed book, closed notes examination.
- One sheet with the necessary equations, and you are allowed to use a calculator.
- Answers must be clear and coherent.
- Show detailed steps; final answers alone are not accepted.
- If answers span multiple pages, ensure your name and student number are on each paper.
- Complete and sign the student declaration form paper for the exam.

Part 2: Assignment Submission

- Submit to the university's eLearning system via https://elearning.htu.edu.jo by the specified deadline.
- The submission is a Source code file (ipynb).
- No compressed files or folders (no .zip or .tar extensions).
- Plagiarism will result in course failure.
- Signed declaration Form (Word Document).

Unit Learning Outcomes

LO2 Investigate a range of data mining techniques to discover patterns and relationships in large data sets.

Assignment Brief and Guidance

Part 1: In-Class Examination (Understanding Data Mining Techniques)

As a data mining engineer at a company, it is essential to possess a thorough understanding of various data mining techniques and algorithms. This includes demonstrating the various scopes of data mining and investigating a range of data mining algorithms and their uses. Additionally, you need to investigate a programming language that can support data mining and apply it to demonstrate how data mining algorithms work.

This part requires you to apply your acquired knowledge to answer questions related to the aforementioned topics. An in-class exam is scheduled for Tuesday, January 30, 2024, at 8:30 AM.

Part 2: Assignment Submission (Real-World Data Mining Application)

As a data mining engineer entrusted with the development of a comprehensive application, your task involves working with the Telecom Network Quality Metrics Dataset and includes the following steps:

1. Apply different techniques for feature extraction to reduce dataset dimensionality.
2. Utilize various clustering techniques on the dataset to cluster the data into two categories: high and low service quality.
3. Evaluate and compare the results obtained from different clustering techniques.
4. Provide a visual representation of the evaluation.

This part challenges you to showcase your skills in feature extraction, clustering, and evaluation within the context of a real-world data mining application.

Learning Outcomes and Assessment Criteria			
Learning Outcome	**Pass**	**Merit**	**Distinction**
LO2 Investigate a range of data mining techniques to discover patterns and relationships in large data sets.	**P3** Demonstrate various scopes of data mining. **P4** Investigate a range of data mining algorithms and their uses.	**M2** Investigate a tool or programming language that can support data mining. **M3** Apply an appropriate tool or programming language to demonstrate how data mining algorithms work.	**D2** Develop a complete data mining application for a real world issue.