Portfolio of Evidence

Faculty Name:	Information Technology
Module Code:	Scientific Computing with Python
Module Name:	ITSCA2 Block B
Module Leader:	Dr Yves Matanga
Internal Moderator:	
Copy Editor:	N/A
Total Marks:	100
Submission Date:	

This module is presented on NQF level 7.

Mark deduction of 5% per day will be applied to late submission, up to a maximum of three days. Assignments submitted later than three days after the deadline or not submitted will get 0%. [1]

This is an individual assignment.

This assignment contributes 10% towards the final mark.

Instructions to Student

1. Remember to keep a copy of all submitted assignments.
2. All work must be typed.
3. Please note that you will be evaluated on your writing skills in all your assignments.
4. All work must be submitted through Turnitin[2] and the full Originality Report should be attached to the final assignment. Negative marking will be applied if you are found guilty of plagiarism, poor writing skills or if you have applied incorrect or insufficient referencing. (See the table at the end of this document where the application of negative marking is explained.)
5. Each assignment must include a cover page, table of contents and full bibliography, based on the referencing method applicable to your faculty as applied at Pearson Institute of Higher Education.
6. Use the cover sheet template for the assignment; this is available from *my*LMS.

[1] Under no circumstances will assignments be accepted for marking after the assignments of other students have been marked and returned to the students.

[2] Refer to the PIHE Policy for Intellectual Property, Copyright and Plagiarism Infringement, which is available on *my*LMS.

7. Students are not allowed to offer their work for sale or to purchase the work of other students. This includes the use of professional assignment writers and websites, such as Essay Box. If this should happen, Pearson Institute of Higher Education reserves the right not to accept future submissions from a student.

Assignment Format

Students must follow the requirements when writing and submitting assignments as follows:

- Use Arial, font size 10.
- Include page numbers.
- Include a title page.
- Print submissions on both sides of the page.
- Write no more than the maximum word limit.
- Ensure any diagrams, screenshots and PowerPoint presentations fit correctly on the page and are referenced.
- Include a table of contents.
- Use the accurate referencing method throughout the assignment.
- Include a bibliography based on the applicable referencing method at the end of the assignment.
- Include the completed Assessment/Project Coversheet (available on *my*LMS).
- Check spelling, grammar and punctuation.
- Run the assignment through Turnitin software.

Essential Embedded Knowledge and Skills Required of Students

- Report-writing skills
- Ability to analyse scenarios/case studies
- Understanding of subject field concepts and definitions
- Ability to apply theoretical knowledge to propose solutions to real-world problems
- Referencing skills

Resource Requirements

- A device with Internet access for research
- A desktop or personal computer for typing assignments
- Access to a library or resource centre
- Prescribed reading resources

Delivery Requirements (evidence to be presented by students)

- A typed assignment[3]
- A Turnitin Originality Report

Minimum Reference Requirements

At least five references for first year, ten references for second year and fifteen references for third year.

Additional reading is required to complete this assignment successfully. You need to include the following additional information sources:

- Printed textbooks/e-books
- Printed/online journal articles
- Academic journals in electronic format accessed via PROQUEST or other databases
- Periodical articles e.g. business magazine articles
- Information or articles from relevant websites
- Other information sources e.g. geographic information (maps), census reports, interviews

Note

- It is crucial that students reference all consulted information sources, by means of in-text referencing and a bibliography, according to the applicable referencing method.
- Negative marking will be applied if a student commits plagiarism i.e. using information from information sources without acknowledgement and reference to the original source.
- In such cases, negative marking, also known as 'penalty scoring', refers to the practice of subtracting marks for insufficient/incorrect referencing.
- Consult the table at the end of this document, which outlines how negative marking will be applied as well as the way in which it will affect the assignment mark.

Instructions to Marker

Marking

- An assessment criteria matrix is available from the developer upon request.
- Award marks according to the mark allocation suggested in the answers.
- Consult the information on mark allocation in the 'Note to Marker' note boxes, where relevant.

[3] Refer to the Conditions of Enrolment for more guidance (available on *my*LMS).

- The answers provided in this memorandum are sample answers and do not cater for all possible solutions. Markers, being content experts, must use their own judgement when marking the students' answers.
- If you marked using your own discretion and have accepted information as correct that has not been included in the memorandum, this information has to be written on the memorandum and a copy of such must be attached to the scripts that will be sent for moderation.

Plagiarism

- Every assignment must be submitted with a Turnitin Originality Report. The similarity index must be interpreted by the lecturer and penalties applied accordingly.
- Negative marking has to be applied if a student has not complied with the minimum reference requirements and/or referencing style. See the table at the end of this document in which negative marking is explained.

Section A

Learning Objective

Test the student's understanding of scientific computing.

Assignment Topic

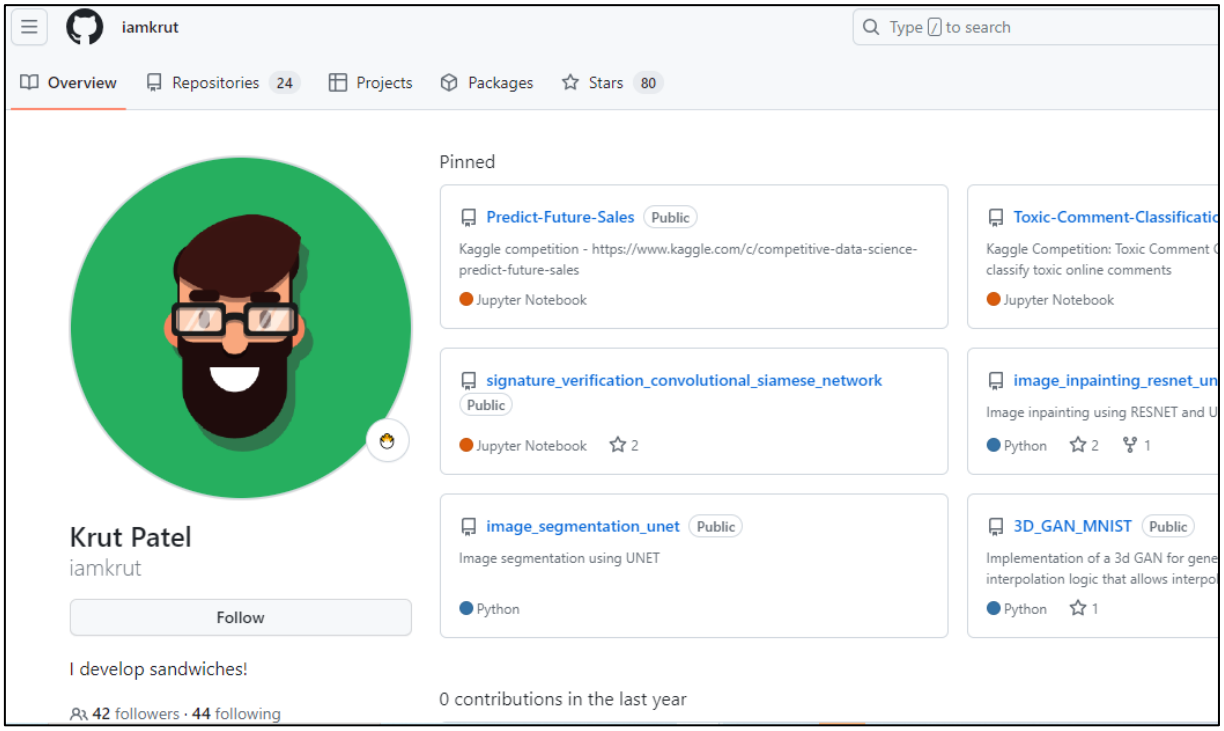
Problems on scientific computing

Scope

Block 1 + Block 2 Week 1-5

Question 1 — 100 Marks

A portfolio of evidence for a programmer is a collection of work samples and projects that showcase a programmer's skills, abilities, and achievements. It serves as a tangible representation of their experience, expertise, and the quality of their work. A well-curated portfolio can be invaluable when seeking new job opportunities, freelancing gigs, or even applying for higher education programs.



You are required to create a github account and create a “data analytics repository” for the following project:

- Folder path on github: data_analytics/natural_language_processing/project
- projects/text mining/**un_declearion_hr_insights.py**
- projects/text mining/output/**word_cloud.png**
- projects/text mining/output/**most_freq_terms.png**
- projects/text_mining/datasets/**un_declaration_hr_text_data.txt**

Using natural language processing perform text analysis on the UN declaration of Human rights in order to identify the most pertinent terms in the document.

Source: Dr Yves Matanga, 2023

1. Read in the UN declaration of Human Rights term into a relevant Python data structure.
2. Generate a Word cloud of the most frequent terms in the document excluding stop words.
3. Generate a bar plot of the top 25 frequent terms in the document excluding stops words

Ensure that the generated wordcloud and barplot images are stored in the specified folder.

Make your data_analytics folder public on github and submit your Github web address for evaluation: e.g. **https://github.com/iamkrut**

You will be evaluate based on the correctness of your work and the project organisation of your github page as stipulated..

[100 marks]

End of Question 1