ADS 1 Mid-term CW

A poetry assistant

There are many aspects to a poem and a poetry assistant could help a poet in various ways, but a basic requirement is that an assistant should suggest *rhymes*. For example, on submission of *cat*, the assistant would return a list of rhymes:

> *cat?*
> *acrobat*, *bureaucrat*, *laundromat*, *thermostat*

This coursework asks you to design and implement such an assistant.

Your design must contain at least **one original algorithm** and at least **one data structure**.

A minimum requirement is that your poetry assistant should deliver rhymes.

Your response to this challenge will be in the form of a report which should consist of the following sections:

Section 1 The essence of your solution to the challenge in a single paragraph.

Section 2 An explanation of the **original** algorithms of your solution in non-technical language. You do not need to describe the workings of any standard algorithm, such as *mergesort*, that might comprise part of your solution.

Section 3 Pseudocode for each original algorithm. You are urged to follow the pseudocode conventions of Cormen at al, Chapter 2. Pay great attention to how you lay out your pseudocode. In particular, take care to use structured indentation. Pseudocode that is not correctly indented, or is otherwise unreadable, will not be marked.

Section 4 A list of the **data structures** in your solution. Explain why each chosen data structure is suitable for the task.

Section 5 A javascript implementation of your solution and a link to a one minute video that shows your code in execution. The source code must be visible and your code must be commented in order to facilitate cross-checking with your pseudocode.

Section 6 Point out any defects of your design and/or implementation. Suggest remedies for these shortcomings.

Submit your report as a pdf. Pay attention to clarity of expression, document presentation, and pseudocode and code formatting. Handwritten answers are prohibited.

Resources

A list of almost a quarter of a million English words can be obtained from:
https://introcs.cs.princeton.edu/java/data/wordlist.txt

Mark scheme

Mark	Descriptor	Specific Criteria
80-100%	**Exceptional**	Exceptional work that **far exceeds the brief**; evidence of an understanding of data structures and algorithms and implementational skill that **surpasses this course**. Indicative expectation: the proposed system (even if not implemented in full) has the promise of a workable poetry assistant
70-79%	**Excellent**	Demonstration of a **thorough grasp** of data structures and algorithms and their implementation; an indication of **considerable independent thought**. Indicative expectation: the brief is surpassed; there is a reasoned case for all decisions and alternatives have been considered
60-69%	**Very good**	Demonstration of a **sound and competent grasp** of data structures and algorithms and **sufficient implementational skill**. Indicative expectation: the brief has been met; a very high standard of documentation; at least one original algorithm with correct pseudocode/ flowchart and implementation; an appropriate and reasoned choice of at least one data structure; the high level account of the poetry assistant is coherent and clear; full consideration of drawbacks and possible remedies
50-59%	**Good**	Demonstration of an **adequate grasp** of data structures and algorithms and **sufficient** practical skills Indicative expectation: a good standard of documentation; there are mistakes in pseudocode/flow charts; the implementation is incomplete; data structure explanation is unconvincing; the account is satisfactory (it makes sense even if poorly expressed); the implementation has minor errors and/or does not quite meet the proposed objective; some consideration of drawbacks
40-49%	**Pass**	Demonstration of a **threshold grasp** of data structures and algorithms and **limited** practical skills Indicative expectation: documentation is partially deficient; there are many mistakes in pseudocode/flow charts; the implementation is incomplete; lack of data structure explanation; the account is muddled and partially incoherent; the implementation has many errors and/or does not meet the objective; a superficial account of drawbacks
25-39%	Fail	An **overall failure** of understanding of data structures and algorithms and their implementation **Poor** documentation
10-24%	Bad fail	A **significant failure** of understanding of data structures and understanding and their implementation Documentation has **many failings**
1-9%	Very bad fail	**No attempt** to address the brief
0%		The work has not been submitted and/or plagiarised and/or handwritten