



Computer Science and Creative Technologies

Coursework or Assessment Specification

Module Details

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| Module Code | UFCFD3-30-1 |
| Module Title | Introduction to Artificial Intelligence |
| Module Leader | Prof. Jim Smith |
| Module Tutors | Jim Smith, Chris Simons, Nathan Duran, Emmanuel Sinclair-smith |
| Year | 2019-20 |
| Component/Element Number | CW1 |
| Total number of assessments for this module | 3 |
| Weighting | 25% |
| Element Description | Coursework – solution to a series of knowledge representation problems |

Dates

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| Date issued to students | 23/09/2019 |
| Date to be returned to students | |
| Submission Date | 12/12/2019 |
| Submission Place | Online via Blackboard |
| Submission Time | 2pm |
| Submission Notes | Deliverable is a single plain text file with the name <i>chatbot_<username>.aiml</i> Submission and marking is automated, accessed through a link in the Assignments=>First Coursework folder on Blackboard |

Feedback

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|-----------------------------------|---|
| Feedback provision will be | Provided automatically by the marking system at the time of submission. |
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Contents

| | |
|--|---|
| Module Details..... | 1 |
| Dates..... | 1 |
| Feedback..... | 1 |
| Contents..... | 2 |
| Section 1: Overview of Assessment..... | 3 |
| Section 2: Task Specification..... | 3 |
| Section 3: Deliverables..... | 3 |
| Section 4: Marking Criteria..... | 3 |
| Section 5: Feedback mechanisms..... | 4 |
| Appendices and Additional Information..... | 5 |
| Marking Criteria..... | 6 |



Section 1: Overview of Assessment

This assignment assesses the following module learning outcomes:

“Design and implement intelligent solutions using at least two different architectures”.

In this assignment you will design and implement a chatbot using an expert system architecture. Your use of another architecture will be assessed as part of the second coursework.

The assignment is worth **25%** of the overall mark for the module.

The assignment is described in more detail in section 2.

This is an individual assignment.

Working on this assignment will help you to gain experience of creating intelligent solutions that embed user knowledge in a human-readable rule-based form. The marking scheme encourages you to use the capabilities of the chosen language (AIML) to produce a concise scalable solution that explicitly separates different types of knowledge.

If you have questions about this assignment, please post them to the discussion board *Chatbot Coursework Discussion Forum* on Blackboard.

Section 2: Task Specification

A set of 50 questions, and their required responses will be posted in the *“assignments->First Coursework”* folder on the module’s Blackboard site. The task is to design and implement the knowledge base for an AIML-based chatbot that is able to correctly answer all of the questions.

This will require you to demonstrate that you have understood the concepts in knowledge-based systems such as domain-specific vs generic knowledge, and the use of variables to store short-term instance-specific knowledge.

- Note that the required responses must be matched exactly.
- You may, if you wish, use the “pandorabots” online bot-hosting systems (used in tutorials) to develop and refine your bot.
- A copy of the programme that does the automated marking will also be provided in the coursework folder, along with instructions for using it should you prefer to develop and/or test your system on your own machine.

Section 3: Deliverables

You should submit your code for automated assessment via the link in the folder *“assignments->First Coursework”*. Code should be submitted in the form of a single plain text file. This should contain a set of AIML categories in the appropriate xml format. The file name should have the format *chatbot_<username>.aiml*, e.g. *chatbot_an-other.aiml*.

You are highly advised to use the provided copy of the marking programme to check your submission prior to submission to avoid problems with ‘hidden’ formatting code etc. that can occur when copy-pasting text from Pandorabots.

Section 4: Marking Criteria

This coursework is being marked by an automated system. You will be allowed six attempts and the highest mark will be taken.

To assess your ability to use the power of the AIML language, via features such as wildcard matching, symbolic recursion, precedence hierarchies and history, the marking scheme will be as follows:

| 0-49 | 50-85 | 100 |
|--|--|---|
| Chatbot does not provided correct response to each question. | Chatbot provides correct response to each question. AIML language features are used well to provide concise knowledge management. Solutions that 'game' the system by exploiting the known order in which the 50 questions are presented by using <5 categories will get 65 marks. | Chatbot provides correct response to each question. Exceptional analysis of knowledge to be stored and how to encode it concisely. Wide range of AIML language features are used. |
| One mark per correct answer. | 100-N marks, where N is the number of AIML categories used to encode the knowledge base (except where $N < 5$) | Fewer than 15 categories used. |

Section 5: Feedback mechanisms

The automated marking system will provide you with instant feedback on the score you attained, along with some hints about how you can use language constructs to improve your score.

It will also provide you with links to three files that you can download and read to further understand why you have got the score given, and how you can improve.

- The source file you submitted
- A question-by-question list of the expected output, and the corresponding output from your chatbot.
- A detailed listing from the marking system as it ran your supplied file through the chatbot. This includes:
 - a preamble, stating how many categories were successfully read from your file (a useful check for debugging).
 - A question-by-question listing of the sequence of rule-matches that can be useful to understand the response to specific questions.
- If you have any trouble interpreting these files please first look on the coursework discussion board, and post your queries for the tutors to answer. You may do this anonymously if you prefer.