

CSP3341: Programming Languages and Paradigms

Assignment:	Technical Report & Presentation
Assignment Marks:	Technical Report marked out of 36, (18% of unit) Presentation marked out of 24, (12% of unit)
Due Date:	See schedule on Blackboard (for both the report and narrated presentation)

Assignment Description

In this assignment, you are required to write a technical report about a programming language, and make an accompanying presentation. This assignment is to be completed in **groups of two** students. You may form your own groups – this should be done by the end of Week 1.

Once you have formed a group, email the names and student numbers of your group members to your tutor and you will be assigned a language. If you are not in a group by the end of Week 2, contact your tutor. It is **your** responsibility to ensure that are in a group.

You may choose languages from the following list:

Ada, Afnix/Aleph, ALGOL, Alice, APL, AWK, BASIC, Clarion, Clipper, CLU, COBOL, CORAL66, Cuda, Curry, Dylan, Eiffel, Forth, Fortran, Haskell, Jade, JOVIAL, LISP, Lush, Mathematica, Matlab, ML, Modula, NPL, Oberon, occam, Pascal, Perl, Pike, PL/I, R, RPG, Ruby, Scheme, Sh (graphics), Simula, Smalltalk, Snobol, SPARK, TOM.

Languages will only be assigned once a group informs their tutor of the names and student numbers of their group members via email.

Technical Report

Reports must be technical in nature, detailing the allocated programming language. It should identify the important features of the language, and the class of languages to which it belongs. Do not try to sell the language as the “best one ever” or simply list technical details about it. Rather, **discuss** the significant technical features of the language and **compare** it other languages or language paradigms as relevant. Ideal topics of discussion include the context of the language in the evolution of programming languages, its relationship to other languages and how its features relate to the design goals of the language.

You may use the **chapters of the textbook** as a guide to what should be covered or included in your report, however this does not mean that you must include a report section for each chapter.

The report should, wherever possible, contain source code and/or screenshots of programs written in the language which illustrate the content of the report. You may also provide compiled programs or code, as long as they can be run in a standard Windows environment with minimal amounts of setup. If you do this, *include the source code and/or screenshots in the report regardless.*

The *content* of the report should be a **maximum of 30 pages** long. This does not include screenshots and large sections of code.

Sample structure for Technical Report

Some points :

- Cover topics related to the lecture topics
- Provide code examples and comparisons with other languages
- Discuss in terms of the good and bad points of the language
- Discuss in terms of readability, writeability, performance , cost

1. *Introduction*
 - a. *History*
 - b. *Influences*
 - c. *Compilation vs Interpretation (Implementation)*
2. *Uses of the Language*
3. *Syntax and semantics*
4. *Lexical Analysis*
5. *Naming Conventions*
6. *Data Types*
7. *Expressions and Assignment Statements*
8. *Statement Level Control Structures*
9. *Sub Programs*
10. *Abstract data types and encapsulation*
11. *Support for Object oriented programming, functional, structured etc*
12. *Concurrency – Parallel processing*
13. *Exception Handling and Event Handling*
14. *Comparison with similar languages*
15. *Readability, Writeability, Performance*
16. *Conclusions*
17. *References*

Presentation

Each group is required to prepare a presentation regarding their allocated programming language. The presentation should reflect the content of the report, covering the same core areas in a concise and informative manner. It is up to your group to decide what is most pertinent to include. You may also wish to demonstrate a sample application of your language. All members of the group should be given equal speaking time.

You should record narration for your section of the presentation using Powerpoint and audio. This can be achieved via PowerPoint's narration feature (recommended), or via the use of another application such as Audacity. Advise your lecturer or tutor *in advance* if you are experiencing difficulties in narrating your presentation.

Presentations **should not exceed 20 minutes, including 5 minutes for questions**. You will be provided with a series of questions that you must answer at the end of the presentation. Slideshows accompanying presentations should be a **maximum of 30 slides** long.

General Advice

Each chapter of the textbook covers concepts of programming languages and paradigms, which your readings and course content throughout the semester will familiarise you with. Depending on the language you are writing about, some chapters may be more applicable than others - it is up to you to determine what is relevant and important to include in your report and presentation.

For example, Chapter 2 deals with evolution of computer languages. Some areas of discussion are: Who created your allocated language? When was the language created? What were the rationale and design goals for creating the language? What older languages influenced this language, and how? What younger languages have been influenced by this language, and how? How many major versions of the language have been created, and when?

If the content of a chapter or section do NOT apply, then the reason for this should be briefly discussed. If there are other significant concepts or elements of your language not discussed in the text, then these should be discussed.

Further tips and advice include:

- Work on your assignment with your group throughout the semester as you read your textbook and cover successive chapters, to make sure the concepts are fresh in your mind.
- If your group's language has had many versions or dialects, decide which ones to focus on based on impact and significance. You are not required to discuss every version and dialect.
- In addition to the language, it may be appropriate to discuss the programming development environment if it is an important feature of the language.
- Consult with your lecturer or tutor regarding the proposed content and structure of your report and presentation.
- Page limits and presentation durations have been specified. Minimums have not been specified. While marks are not awarded for excess "filler" which adds little to the content of your assignment, be sure to address all areas in suitable depth.
- Search for both academic research and technical documentation about your assigned language, and be aware of similar or parent languages if information is scarce.
- If your language is extremely large, select important or significant features you wish to focus on, rather than trying to cover them all.

- For operational reasons, the unit coordinator may allocate/re-allocate a language to a group or assign/re-assign a student to another group.

Assignment Submission

Once your group have completed the report, re-read the brief and review any further information provided in class or online to ensure that you have actually done what is required. Then, zip your report, your presentation slides, and any other necessary files (e.g. narration audio or compiled programs) into a single file.

Ensure that the zip's filename includes the *surnames of all members of your group*, and then nominate one of your group members to submit it in the Assessments area of this unit on MyECU/Blackboard. Include the *full name and student number* of all group members in the submission comments. Only one member of your group needs to submit the assignment.

Referencing & Plagiarism

The entirety of the assignment must be the work of your group, unless otherwise referenced, and produced for the current instance of the unit. Any use of unreferenced content you did not create for this assignment constitutes plagiarism, and is an act of academic misconduct. All assignments will be submitted to TurnItIn plagiarism checking software which includes previous copies of the assignment.

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Assignment Marking Key

Marks Allocation

Criteria	Marks Allocated	
	Report	Presentation
Structure, Layout & Formatting Suitable flow of introduction, discussion and conclusion and appropriate layout and formatting of report and presentation.	/ 4	/ 3
Content & Depth of Coverage Appropriate areas discussed in suitable depth in report, and summarised well in presentation. Presentation discusses content concisely and informatively.	/ 8	/ 6
Points of Discussion& Comparisons Meaningful discussion of the language and its features is present, and comparisons to other languages made. Context of language is examined.	/ 10	/ 8
Illustrative Program Examples Source code, screenshots and/or programs used to illustrate areas of discussion as appropriate.	/ 5	/ 3
Clarity, Spelling, Grammar& Delivery Content of report expressed clearly and is well written. Presentation is concise, informative, and well delivered.	/ 4	/ 4
Evidence of Research & Referencing Evidence of substantial research is apparent, and all sources are correctly referenced in ECU style.	/ 5	

Summary& Feedback

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Results

Total Mark	Grade
/ 60 (/ 30% of unit)	