For your team semester project, form teams of 2 to 4 students to explore in-depth an old, new, or emerging programming language that supports one or more different programming paradigms.Recall that a programming paradigm describes the underlying conceptual and computational model of the programming language such as imperative, procedural, object-oriented, etc., as in <http://cs.lmu.edu/~ray/notes/paradigms/>, <https://en.m.wikipedia.org/wiki/Programming_paradigm> and <https://en.m.wikipedia.org/wiki/Software_development#Programming_paradigm>

**Possible Languages to consider are based on categories or application domains or for specific purposes:**

1. Languages for IoT, concurrency/parallelism, machine learning, secure transactions, blockchain, etc. or some other language with an associated paradigm that you can propose.
2. Categories as in <https://en.m.wikipedia.org/wiki/List_of_programming_languages_by_type>
3. Time period organization as in <https://en.m.wikipedia.org/wiki/Timeline_of_programming_languages>

You cannot choose any language from the course programming assignments (C, C++, Pascal, Modula-2, Ada, Prolog, Go), if it’s covered extensively in class (Fortran, COBOL), from a CSE class (Python, scheme), or is widely in use (Java, JavaScript, C#, Objective-C, Swift, etc.).

Make sure you select a language that has an available compiler to utilize for demonstration and testing purposes.

Each team of 2 to 4 students will submit a written multiple part report and two PowerPoint presentations with specific content/objectives and responsibilities as given in the four deliverables:

1. One page discussion of your chosen programming language. What is your programming language paradigm (e.g., functional, logic-based, procedural etc.)? Why did you choose your programming language? What types of problems does it solve? What application domains is it relevant for? When how and who were the inventors of the programming language?
2. A final report of your chosen programming language with 12 pages for 2 person teams, 18 pages for 3 person teams, in 24 pages for 4 person teams with each team member writing 6 pages. The responsibilities of team members are as follows:

* One team member focuses on the overall introduction of the programming paradigm in programming languages that have been chosen which can be achieved by: expanding the one page discussion in more detail; discussing the underlying programming paradigm (e.g., concurrent, parallel, functional, etc.); explaining the motivation and history of the language, biographies of the founders; and, discussing the domain or intended application types, etc.
* Each of the other 1, 2, or 3 team members focuses on the programming language in detail including: perspective of technology, the compilers available, the supported platforms, the IDE, etc., the grammar in EBNF or yacc/bison format as an appendix, etc.
* Note that for a team of three or four, for the given paradigm, the team select multiple programming languages, each team member is responsible for one language. For example, for object-oriented paradigm, Java, Eiffel, and C++ could be the three languages for a 4 person team, with one team member doing the overview and the other three team members assigned to one of the three languages.

1. Demonstrate your chosen programming language by implementing when possible the Word Count Functionality (WCF) and Word Frequency Functionality (WFF) of the programming assignment project. This is the responsibility of each team member who have been assigned to a programming language for the team.
2. There are two PowerPoint presentations required to be submitted by each team

* A 50 (two person teams)/75 (three person teams)/100 (four person teams) minimum slide PPT presentation on your chosen programming language using the CSE4102 template on the course web page with each team member responsible for 25 slides. This presentation should include the material from A, B, and C. The one person in charge of the overview of the programming language and its history has the 25 slide presentation at the start followed by one or more 25 slide presentations on each programming language by the remaining members of the team. Slides on the programming language implementation are part of each programming language presentation.
* A short 5 to 10 slide presentation to be presented in class at the end of the semester. These will essentially be very quick presentations that are either 5 or 10 minutes depending upon the number of teams we end up in the class.

The main intent of this plan structure is for each team member to be responsible for a portion of the final report in B (6 pages) and in the PowerPoint presentation in D (25 slides) as described above with all team members to share A.

***Your team needs to get approval by the instructor for the chosen language.***

**Formatting and Submission Requirements:**

* All slides must be formatted with http://[sdcse.engr.uconn.edu/Cse4102/cse4102template.pptx](sdcse.engr.uconn.edu/Cse3002/cse3002template.pptx)
* Slide 2 of http://[sdcse.engr.uconn.edu/Cse4102/cse4102template.pptx](sdcse.engr.uconn.edu/Cse3002/cse3002template.pptx) has organization of final PPT.
* For written reports A and B,, 1 page is 12pt, 1in margins, single spaced, Times New Roman fonts. You must submit an MS Word Document.
* For presentations, use PowerPoint.
* Tables, Figures, etc. are not counted in the page requirements of B.

**Important dates**

* *By February 4 at 11:59pm*: submit to Steve: a list of team members, your programming language and associated paradigm and a one-page description of the language, and which team member is doing which deliverable (B, C, and D).
* *By April 19 at 11:59pm*: submit to Huskyct the two PPT presentations.
* *By May 1 at 11:59pm*: submit to Huskyct final report with and appendices and your implementation.