CS 4850 FALL 2023: PROJECT & DEMO
PLANNING WITH STATES
Instructor Dr. N. Bourbakis

Demo in Person (Alphabetic Order): Nov. 27, 2023, Time: 12:00 noon -2:00pm
Location: the 467 room in Joshi Building 4th floor.
Deliverable: (1) A Professional Typed Report that explains the methodology and the results; (2) the corresponding executable and source Code (C++, Python, Java) and (3) the PPt presentation file
Deliverable Due time: Dec 01, 2023, 11:59:59 pm.
NO PROJECT WILL BE ACCEPTED AFTER THE DEADLINE ALSO NO HANDWRITING

AI-4850 UNDEGRADUATE STUDENTS ONLY:

Consider the state space for the Blocks World that includes:
(1) The following blocks (***a, b, c, d, e, f, g, h, i, j, k, m, n***);
(2) The relations among the blocks (ABOVE, ON, CLEAR, TABLE); and
(3) There are only **three locations** (L1, L2, L3) on the table for blocks possible placement;
(4) the **functions or actions** {PICK-UP(Li), PUT-DOWN(Li), STACK(Li), UNSTACK(Li), MOVE(Li, Lk), NOOP}; where, Li represents the current location of a box and Lk represents the destination location; Your program must perform the sequence of actions on the blocks by a **single robotic arm**, which can perform one action on **one box** at a time. For the transition from one state to the next state your program **must** use the appropriate functions (actions) logically needed.
Develop an algorithmic method (**write the code in C++, Python, Java languages**) that accepts:

(i) as inputs a given scene (**starting state of these blocks** {which is their **initial** placement on the table (T) using the locations or their placement on each other};
(ii) a final scene (**destination state**) for these blocks and
(iii) generates and displays the sequence of all consecutive scenes (**or states**) that lead from the starting state to the destination state.

The **starting and the destination** states will be given to you by me at the demo time and you will run your code proving that works at that time and for all possible scenarios.
Projects that run beyond to the available 10 minutes time frame will be stopped and loose points.

Presentation (10 minutes). The instructor will provide to you initial and final states.
YOU MUST EXPLAIN HOW YOUR METHODOLOGY WORKS, IN BRIEF (use a flow chart);
YOUR DEMO MUST HAVE VISUAL REPRESENTION OF THE BLOCKS PLACEMENTS IN SEQUENTIAL STATES UNTIL TO REACH THE DESTINATION
IF YOUR CODE DOES NOT WORK DURING THE DEMO TIME YOU WILL LOOSE 50% OF THE POINTS. AFTER THE PRESENTATIONS (DEMOS) NO COMMUNICATION ABOUT YOUR PROJECTS WILL BE ACCEPTED;
NO FINAL REPORTS WILL BE ACCEPTED AFTER THE DEADLINE, Dec. 01, 2023.
Plagiarism is not accepted.
If two or more Final Reports will have overlapping to each other will be rejected, no points will be given.

WRITTEN TECHNICAL REPORT
Outline Mandatory
Technical Reports with handwriting will be rejected no points.
Incomplete Technical Reports loose points
Plagiarism is not accepted.
SUBMISSION OF THE TECHNICAL REPORT
Dec 01, 2023 until 11:59pm

C++, Python, Java

- **Title** (type the names of the participants and the date) 1 page
- **Abstract** (provide a brief description of the context of the entire report) 1 page
- **Table of context** (provide the subtitles of the main paragraphs) 1 page
- **Introduction** (explain in brief the (i) motivation, (ii) the goals, (iii) overall organization, of the technical report) and (iv) results proving that your method works1-2 pages
- **Main sections** (describe in detail all the main parts of the technical report)
  Methodology (written text)
  Methodology's Flowchart;
  Include the results from two experiments of your choice;
  The length (in pages) of each of these sections varies according to the authors approach
- **Conclusions** (provide a brief description of the outcomes of this report) 1 page
- **References** (cite the places (books, reports, class-notes, articles, etc.) that you used to support your report.

ALL THE DELIVERABLES (in the form of files and no drop box option) WILL BE EITHER SEND BY EMAIL TO MY PERSONAL EMAIL OR YOU PROVIDE A CD OR USB AND DROP IT IN MY PERSONAL MAILBOX IN THE CSE DEPT.

Good luck.