IS170 Exam 3 Due on May 7th Wed (No Make-up!) Dr. Choi

This exam deals with your ability to create, control, coordinate, and manage AI Agents using API calls to complete a complex project/task. Your understanding and skills of Agentic AI are critical.

For this exam, you are required to code minimum six AI Agents where one must use a loop based on the nature of the project using any platform (e.g. AWS, OpenAI, Claude, Meta, X, Microsoft, nVidia, Huggingface, etc…) and minimum two different LLMs of your choice (you will need their API keys and the typical cost of API use is about 2cents or less per call. For this exam, you are expected to use about $1 or less, you need to use your credit card). The first step is to research and find as much as you can about Agentic AI to fill your knowledge gap.

Description: You have just been hired full-time at mVidia AI company. You are assigned to the Agentic AI department.

Your boss tells you to create a thorough report on [xyz] market (or your choice of topic) and its trend by May 7th. Before you do anything else, think about how you would proceed with this task without using AI agents. You will first need to go on to the internet to search for [xyz] market data, information, latest reports, and news. You will then filter and select what is important to include in the report. The report needs some of these activities: search, find, collect, analyze, write, review and edit, and print on the screen. Think about how you would create and use AI agents to do all these. In the end, your AI agents will produce a professional report for your boss. At least one activity is to be looped.

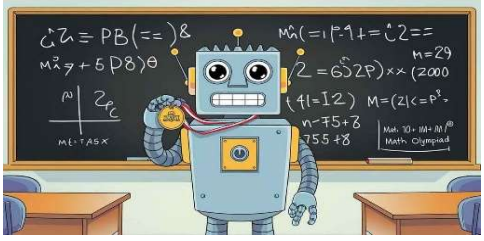
For this exam, you may use your choice of AI coding assistants and any online or offline AI assistance you can access. However, you are not allowed to ask or consult with another individual, this is an exam.

You must attend in person every class to submit your daily work log as a part of your exam via Canvas (20% of exam score). **By April 28th**, your work log must contain the following items: 1) title and full description of the project, 3) reasoning for the sub-tasks breakdown, 4) details of each task and its agent, 5) full description of each agent (title, job, tool(s), function, deliverables), and 6) an overview diagram. This exam is to be initiated on April 21st, Monday, through May 7th, the due date.

On May 7th, 1) take a concept Qs exam, 2) run your AI Agents on a new topic and turn in Agent code and output, and 3) turn in your [xyz] market report. Submit these via Canvas.

Helpful sources on Agentic AI:

- https://academy.openai.com/home/search?query=Agent&type=all
- https://www.deeplearning.ai/courses/?courses_date_desc%5Bquery%5D=agent&courses_date_desc%5Bpage%5D=2
- https://llmpricecheck.com/



Agentic AI market outlook:

The global AI agents market is projected to skyrocket from $5.1-$5.4 billion in 2024 to $47-$50.3 billion by 2030, representing a remarkable 44.8%-45.8% compound annual growth rate (CAGR). This explosive growth stems from surging demand for automation, advancements in natural language processing, and the need for personalized customer experiences across industries like healthcare, finance, and e-commerce. North America currently leads adoption (40% market share), with AI agents increasingly handling customer service inquiries, data analysis, and operational optimization while reducing costs by up to 30%.

Key drivers include cloud computing enabling easier deployment, the post-pandemic e-commerce boom, and labor market pressures as AI agents can perform 40-60% of current human tasks. Major tech firms like Google, Microsoft, and Salesforce are heavily investing in AI agent development, with startups raising over $2 billion. The market expansion mirrors the transformative scale of the SaaS revolution, with some analysts predicting the "Agentic Economy" could be 10 times larger.

While AI agents excel at routine tasks, hybrid human-AI workforce models are emerging, particularly for complex decision-making requiring empathy or creativity. Challenges remain in trust-building and system integration, but the sector's trajectory suggests AI agents will become indispensable tools for operational efficiency and competitive advantage across nearly all industries by 2030.

The AI job market is experiencing explosive growth, with roles like AI engineers and machine learning specialists seeing a **300% increase** in demand since 2020. Salaries reflect this surge—AI engineers now earn **$134K-$206K** on average in the U.S., with senior roles reaching **$269K+**. Machine learning engineers follow closely at **$123K-$180K**, while AI researchers average **$99K-$160K**.

Geographically, San Francisco leads with AI engineers making $164K, but even lower-cost cities like Columbus, OH, offer $104K. Globally, regions like North America (1.5M new AI jobs) and China (1.2M jobs) dominate hiring.

Despite 85M jobs potentially displaced by AI by 2025, 97M new roles are emerging, including AI ethics officers and human-AI collaboration specialists, often paying 30-40% more than traditional positions. Hybrid roles now focus on strategic thinking and AI-augmented tasks, with 60% of jobs expected to integrate AI tools.

*p.s. After this exam, you may put a statement on your CV saying that you know how to build, control, and manage AI Agents for complex projects. Also, prepare to show your code.

This is more than an exam, this will make your career!

Get moving, work on it EVERY DAY!