

Exploratory Report

ENGL 21007 K

Issues: CunyFirst Schedule

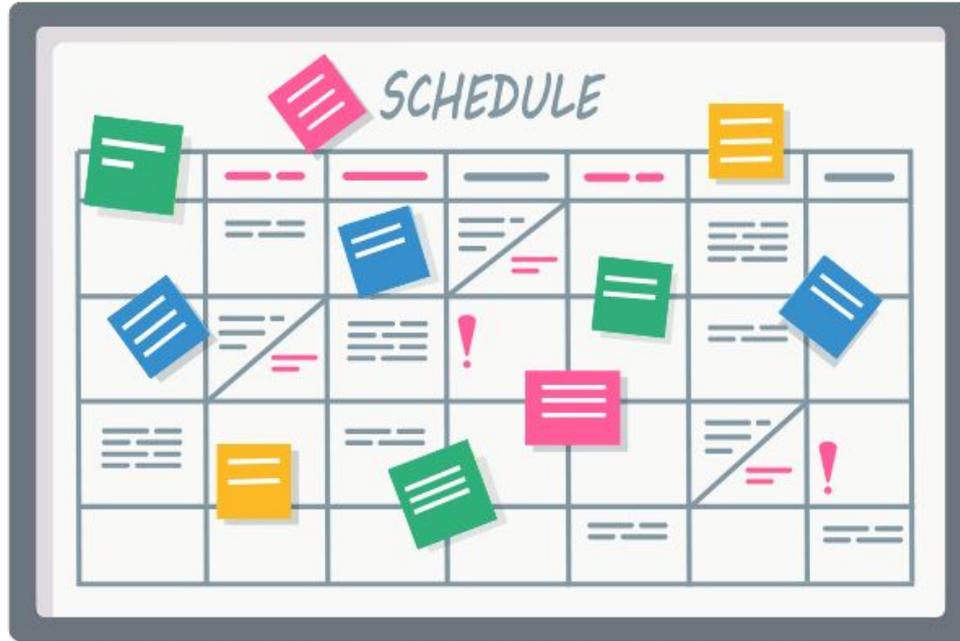
How do we improve upon cunyfirst schedules to better accommodate students?

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How Can We improve CUNY Schedules?



Proposed Responses

- 1. Auto-Schedule Builder
 - Collect information from student's record and preference
- 2. Survey Based Schedule Builder
 - Make a survey asking the students for their preferences in classes
 - Make schedule based on the info. gathered.
- 3. Implementing AI
 - Build an Artificial Intelligence Software
 - Use to assist on schedules

Our reasoning for choosing AI

Primary Search:

- AI can help build schedules that fit around students' lives.
- Many students face issues with CUNYFirst like:
 - Full classes they need to graduate
 - Confusing or unclear DegreeWorks
 - Lack of a clear academic roadmap, even after advising
- AI could act as a real-time assistant to guide course selection.
- It won't replace advisors, but supports students when advisors aren't available.
- Other colleges have already implemented AI in scheduling, CUNY should too.

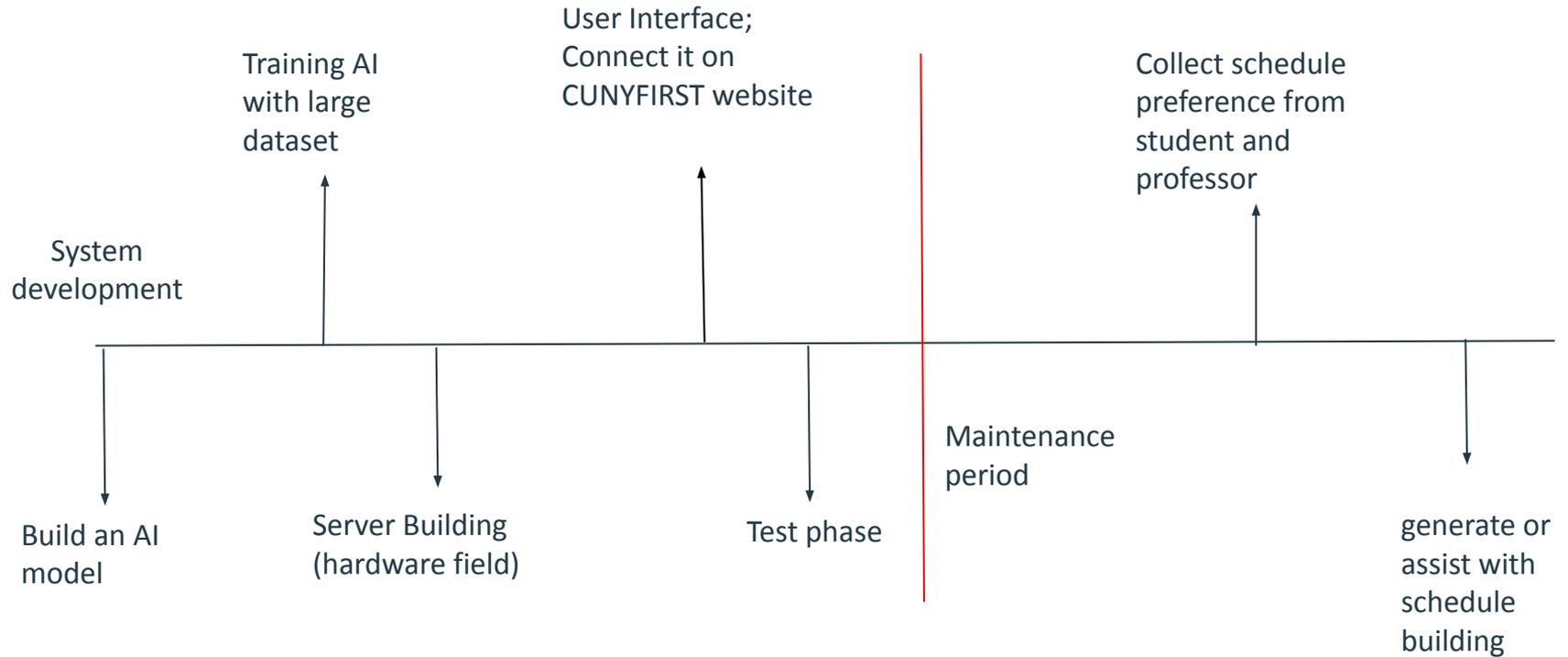
How Can We Implement AI?

- Build an AI from scratch or use a free model and fine-tuned in things like:
 - Course catalogs
 - Degree requirements
 - Common scheduling patterns
 - Students preferences
- Securely connect to CUNY's Data
- Integrate into the CUNYFirst Interface
- Project management
- Volunteer testers(students, professors or advisors)
- Roll Out and Support
 - Helps guides/tutorial on how to use this AI
 - 24/7 chat bot for troubleshooting
 - Feedback
 - Customer service

What are the Costs?

- **Objective:** Propose an AI-driven solution to automate and optimize college class scheduling.
- **Scope:**
 - Analyze critical scheduling constraints (e.g., class availability, room capacity, student needs).
 - Evaluate advanced AI methods like constraint programming and optimization algorithms.
- **Implementation Strategy:**
 - Plan for seamless system integration with existing college platforms.
 - Incorporate user training and feedback loops to ensure usability and adaptability.
- **Cost:**
 - Assess infrastructure requirements (AI servers, IT support, power needs).
 - Include privacy protections and long-term maintenance considerations.
- **Impact:**
 - Provide a scalable framework colleges can adopt to enhance scheduling efficiency.
 - Improve resource utilization while reducing administrative workload.

Timeline



Budget

Professor's salary

Job Code	Union Local 1437					
015938	PROFESSOR					
015963	4/20/2017	10/1/2018	10/31/2019	11/15/2020	11/15/2021	11/1/2022
\$	75,971	\$ 77,490	\$ 79,040	\$ 80,621	\$ 82,233	\$ 83,878
\$	78,971	\$ 80,550	\$ 82,161	\$ 83,805	\$ 85,481	\$ 87,190
\$	82,090	\$ 83,732	\$ 85,406	\$ 87,115	\$ 88,857	\$ 90,634
\$	84,958	\$ 86,657	\$ 88,390	\$ 90,158	\$ 91,961	\$ 93,800
\$	87,495	\$ 89,245	\$ 91,030	\$ 92,850	\$ 94,707	\$ 96,602
\$	90,871	\$ 92,688	\$ 94,542	\$ 96,433	\$ 98,362	\$ 100,329
\$	94,248	\$ 96,133	\$ 98,056	\$ 100,017	\$ 102,017	\$ 104,057
\$	97,628	\$ 99,581	\$ 101,572	\$ 103,604	\$ 105,676	\$ 107,789
\$	101,043	\$ 103,064	\$ 105,125	\$ 107,228	\$ 109,372	\$ 111,560
\$	104,461	\$ 106,550	\$ 108,681	\$ 110,855	\$ 113,072	\$ 115,333
\$	108,683	\$ 110,857	\$ 113,074	\$ 115,335	\$ 117,642	\$ 119,995
\$	112,905	\$ 115,163	\$ 117,466	\$ 119,816	\$ 122,212	\$ 124,656
\$	117,120	\$ 119,462	\$ 121,852	\$ 124,289	\$ 126,774	\$ 129,310
\$	120,450	\$ 122,859	\$ 125,316	\$ 127,823	\$ 130,379	\$ 132,987
\$	128,485	\$ 131,055	\$ 133,676	\$ 136,349	\$ 139,076	\$ 141,858

Research Associate Salary

RESEARCH ASSOCIATE						
4/20/2017	10/1/2018	10/31/2019	11/15/2020	11/15/2021	11/1/2022	
49,521	\$ 50,511	\$ 51,522	\$ 52,552	\$ 53,603	\$ 54,675	
to	to	to	to	to	to	
128,485	\$ 131,055	\$ 133,676	\$ 136,349	\$ 139,076	\$ 141,858	

Cost by hours

After calculation:

Professors : ≈ 55 \$ / hour

Assistant: ≈ 40 \$ / hour

$(55 \times 3(\text{professors})) + (40 \times 5(\text{assistants})) \approx 365$ dollars / hours **for the team**

Estimated cost for paying the team:

600 hours	219,000 \$
1500 hours	547,500 \$
3000 hours	1,095,000\$

Team

Professors: (2-4)

- AI expert
- Server/Systems Architect

Assistants: (3-5)

- Data analysts
- Software engineers
- Hardware engineers

Hardware Cost

- High-Performance Servers (2): \$20,000 (one-time cost)
- GPUs for Model Training (4): \$16,000 (one-time cost)
- Deep Learning Frameworks (TensorFlow, PyTorch, etc.): \$5,000 annual subscription
- Cloud Computing Resources (AWS/Azure): \$20,000 estimated annual cost
- API Development and Management Tools: \$8,000 annual subscription

Total Hardware and Software Costs: **\$69,000** (first year)

Maintenance Costs

- Ongoing Model Refinement and Updates: \$15,000 estimated annual cost
- API Monitoring, Scaling, and Security: \$12,000 estimated annual cost
- Customer Support and Documentation: \$6,000 estimated annual cost

Total Operational Costs: **\$33,000** (annual)

Conclusion

Staff Salary: **\$365** dollars / hours

Estimated Hours Needed: 1,500

Total Salary Needed: **\$547,500**

Hardware Costs: **\$69,000**

Operational/Maintenance Costs: **\$33,000**

Estimated Total Cost For AI Schedule Software:

\$649,500

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