Enrollment Projections Application: Empowering Data-Driven Enrollment Strategies

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BACKGROUND

- Importance of Enrollment

- Enrollment Targets
  - University and College Level

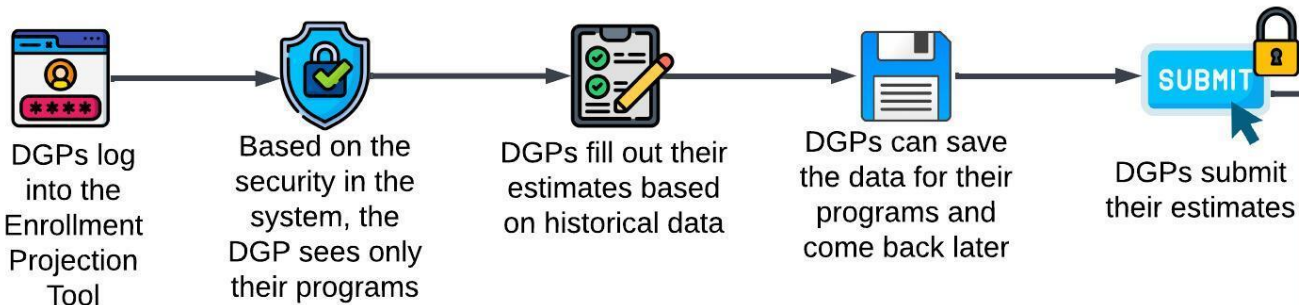- Predictive Modelling and Manual Forecasting

KEY ELEMENTS OF THE PROCESS

- Academic Structure
  - College→ Program→ Plan
  - College of Engineering→Mechanical Engineering→ 14MEMS/14MEMR/14MEPHD

- Roles, Security and Access
  - Directors of Graduate Programs
  - Asst. Deans of Colleges
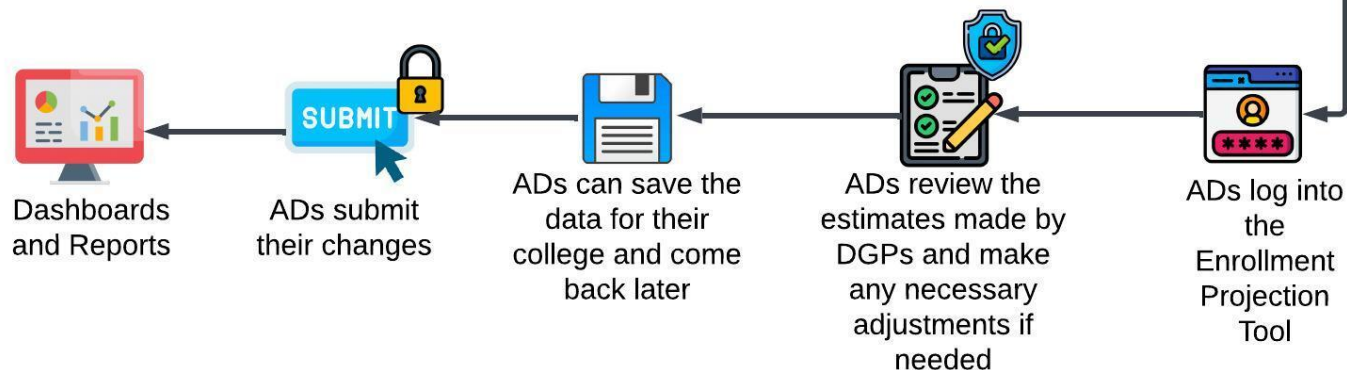
- Student Groups
  - New and Continuing Students

TECHNOLOGY

- Backend
  - Microsoft SQL Server

- Front End
  - PHP programming language

- Security
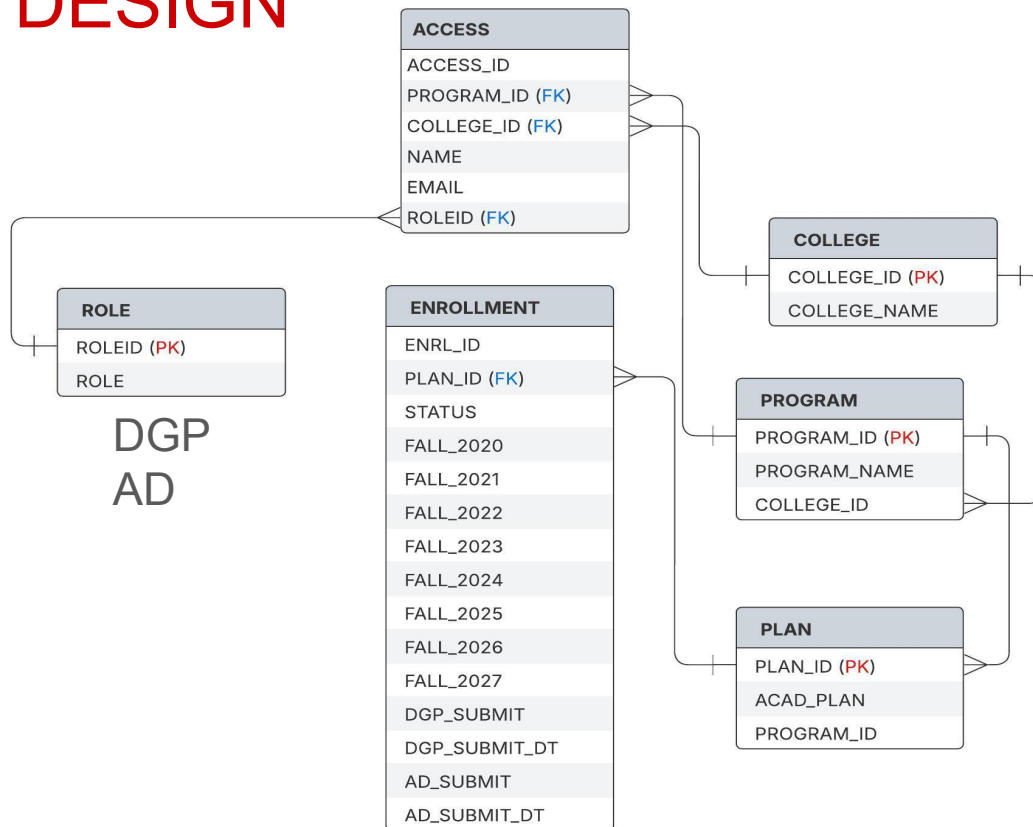 - Shibboleth (Identity Management/Active Directory)

DIRECTORS OF GRADUATE PROGRAMS

DGPs log into the Enrollment Projection Tool

Based on the security in the system, the DGP sees only their programs

DGPs fill out their estimates based on historical data

DGPs can save the data for their programs and come back later

SUBMIT

DGPs submit their estimates

ASSOCIATE DEANS OF COLLEGES

Dashboards and Reports

SUBMIT

ADs submit their changes

ADs can save the data for their college and come back later

ADs review the estimates made by DGPs and make any necessary adjustments if needed

ADs log into the Enrollment Projection Tool

DATABASE DESIGN

TABLES

ROLE

ROLE_ID	ROLE
1	DGP
2	AD

ACCESS

ACCESS_ID	PROGRAM_ID	COLLEGE_ID	NAME	EMAIL	ROLE_ID
1	ME	COE	Raj	pnbhosal@ncsu.edu	1
2	CE	COE	Rushik	rpatel@ncsu.edu	1
3		COE	Peter	peter@ncsu.edu	2
4	PHY	COS	Anna	anna@ncsu.edu	1

COLLEGE

COLLEGE_ID	COLLEGE
COE	College of Engineering
COS	College of Sciences

PROGRAM

PROGRAM_ID	PROGRAM	COLLEGE_ID
ME	Mechanical Engineering	COE
CE	Civil Engineering	COE
PHY	Physics	COS

PLAN

PLAN_ID	ACAD_PLAN	PROGRAM_ID
MEMS	Mechanical Engineering - MS	ME
MEMR	Mechanical Engineering - MR	ME
CEMS	Civil Engineering - MS	CE
PHYPHD	Physics - PhD	PHY

TABLES

ENRL_ID	PLAN_ID	STATUS	FALL_20	FALL_21	FALL_22	FALL_23	FALL_24	FALL_25	FALL_26
1	14CEMS	New	7	24	12	13	9	15	NULL
2	14CEMS	Continuing	19	13	19	18	20	23	NULL
3	14MEMS	New	48	72	48	58	47	55	NULL
4	14MEMS	Continuing	143	112	103	102	90	117	NULL
5	17PYPHD	New	13	11	15	17	21	25	NULL
6	17PYPHD	Continuing	107	108	95	85	81	95	NULL

APPLICATION INTERFACE

Enrollment Projection

- This application is intended to assist DGP's and their respective Associate Deans for Academics (ADA) in developing enrollment targets for their programs for Fall 2026.
- The tool provides the previous five years of enrollment data by program and the percentage change in enrollment as compared to last year. You can download the information for further collaboration and review.
- The enrollment targets for all programs in a College will be routed to the Associate Dean for Graduate program for final review and approval.
- The Graduate School will incorporate the final targets on the daily/weekly admissions reports that will be initiated during the enrollment cycle for the Fall 2026 cohort to compare against the actual enrollments.
- The "Dashboard" button on the top right corner provides a dynamic chart of Admissions and Enrollment for the most recent 5 years. Information on this dashboard can be drilled down further by Program, Degree Type, and Academic Plan to assist the AD/DGP in the target setting process.

| Please Select College ▼ | Please Select Program ▼ | 📊 Dashboard |

Export ⬇

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Plan	Acad Plan	Status	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024	Percentage Difference (From Last Year)	Fall 2025

APPLICATION INTERFACE

Export ⬇

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Plan	Acad Plan	Status	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024	Percentage Difference (From Last Year)	Fall 2025
████r-MS	██████	New	21	28	20	25	40	60 %	40
████r-MS	██████	Continuing	27	42	50	45	46	2.2 %	78
████-PHD	██████	New	9	5	11	6	19	216.7 %	15
████-PHD	██████	Continuing	25	28	29	34	41	20.6 %	37
████-MS	██████	New	48	72	48	58	47	-19 %	55
████-MS	██████	Continuing	143	112	103	102	90	-11.8 %	117
████-PHD	██████	New	20	23	38	19	23	21.1 %	25
████-PHD	██████	Continuing	94	95	95	103	102	-1 %	94

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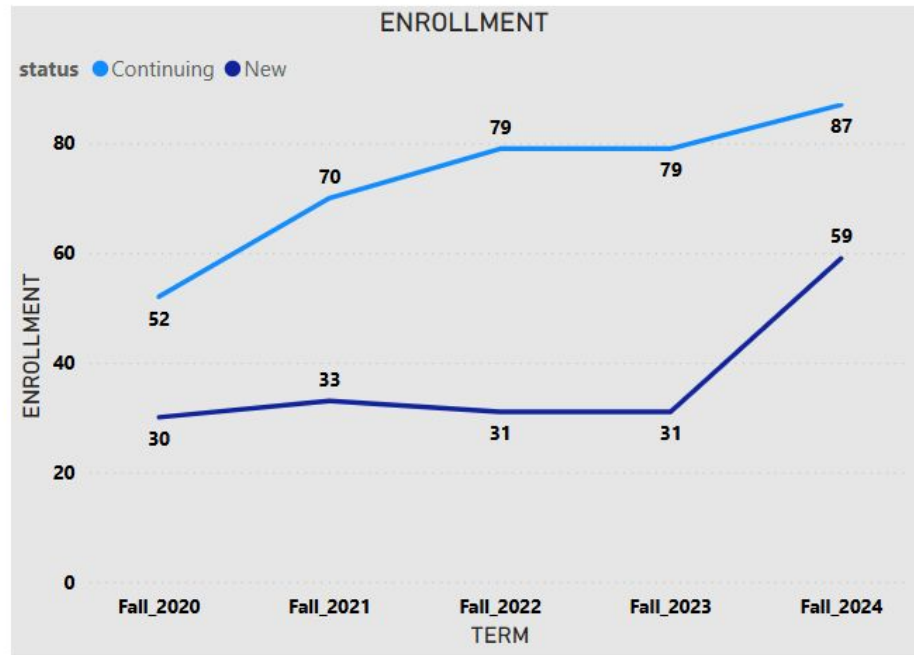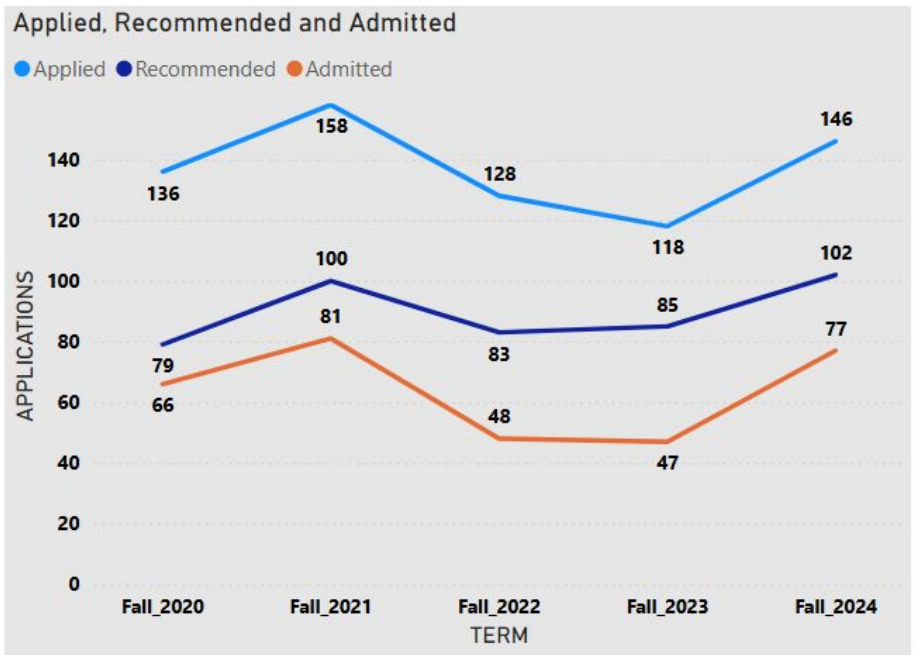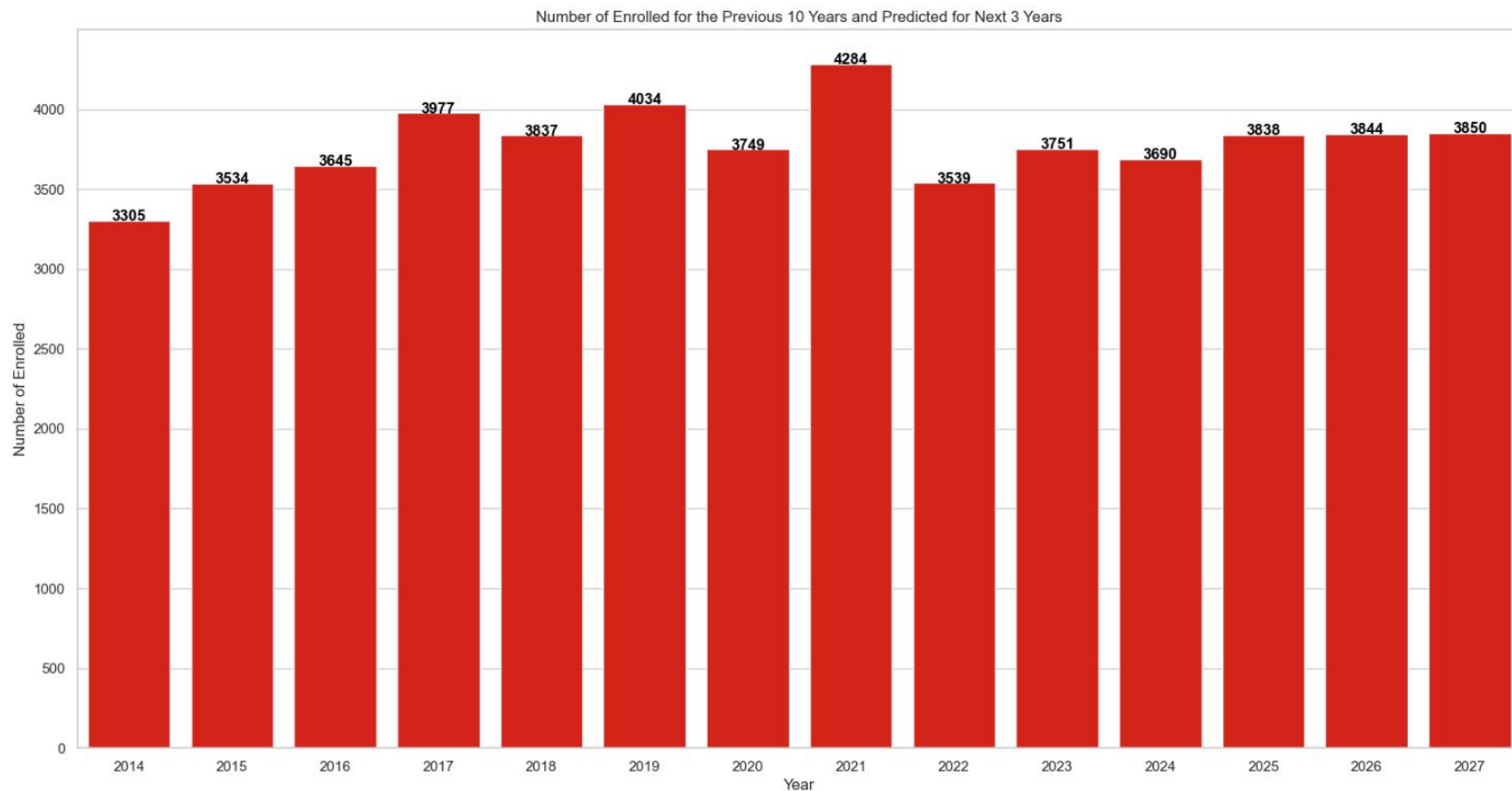
PREDICTIVE MODEL

- Python Jupyter Notebook

- Linear Regression Model

- Train-Test Split Approach
  - 80% Train and 20% Split

PREDICTIVE MODEL

Number of Enrolled for the Previous 10 Years and Predicted for Next 3 Years

DAILY ADMISSIONS REPORT

	Prev App	Curr App	App Diff	Prev Adm	Curr Adm	Adm Diff	Adm Pct Diff	Fall25 Pred Enrl
■	10718	11292	574	430	518	88	20.5%	3013
■	607	670	63	16	25	9	56.3%	277
■	954	1152	198	24	33	9	37.5%	273
■	130	154	24	11	7	-4	-36.4%	112
■	417	421	4	12	5	-7	-58.3%	109
■	1002	1090	88	45	82	37	82.2%	315
■	4894	4536	-358	109	136	27	24.8%	1274
■	579	754	175	140	158	18	12.9%	287
■	1777	2151	374	22	31	9	40.9%	280
■	53	60	7	1	2	1	100.0%	50
■	94	111	17	1	0	-1	-100.0%	24

COLLEGE ▲	YIELD
	70.8%
■	74.4%
■	58.6%
■	62.5%
■	73.7%
■	65.9%
■	78.9%
■	60.8%
■	87.9%
■	80.0%
■	76.0%
■	84.2%
■	79.6%

THANK YOU!

QUESTIONS?

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