

Mohammad Khan

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EDUCATION

Carnegie Mellon University in Qatar — Bachelor of Science in General Studies

Minor in Business Administration | Expected 2026

RELEVANT COURSEWORK

Machine Learning	Imperative Computation	Database Design and Development
Foundations of Software Engineering	Social Psychology	Organizational Behavior

TECHNICAL PROJECTS

Urban Point Loyalty App Database System | Fall 2025

- Designed a PostgreSQL database with 14 tables featuring inheritance relationships and foreign key constraints.
- Developed 10 Python user stories with complex SQL queries including JOINS, aggregations, and window functions.
- Built triggers for automatic data updates and ensured BCNF compliance through functional dependency analysis.
- Tested and debugged CSV data loading, schema validation, and user story implementations.

Query Answering Machine for Mental Health Posts | Spring 2025

- Trained sentiment classifiers using logistic regression, random forest, and XGBoost.
- Extracted TF-IDF and BERT embeddings from 500k+ Reddit posts for hybrid modeling.
- Designed concern-level scoring via rule-based logic and classifier confidence metrics.
- Presented model trade-offs and diagnostic results in a technical faculty presentation.

TECHNICAL EXPERIENCE

Open Source Contributor — Apache Lucene (Mentored by Amazon Engineers) | Summer 2025

- Contributed to Apache Lucene by developing a *SharedMergeScheduler* to enable multi-tenant merge coordination across IndexWriters.
- Refactored merge task logic to support global executor sharing, task tracking, and graceful shutdown handling for thread-pool management.
- Collaborated with Apache mentors through GitHub PR reviews and issue discussions to align design with Lucene's core architecture.

TECHNICAL SKILLS

<i>Languages</i>	<i>Tools</i>	<i>Concepts</i>
Python	scikit-learn	Supervised ML
SQL	Pandas	Feature Engineering
C	Numpy	NLP

COLLABORATION & CROSS-CULTURAL EXPERIENCE

- Worked in diverse academic and team environments at CMU Qatar
- Communicated technical ideas to non-technical stakeholders
- Collaborated in team-based and open-source settings with distributed contributors
- Participated in cross-cultural academic and field learning through a CMU campus exchange in Pittsburgh and a Global Learning Trip to Morocco