Masum Billal

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EXPERIENCE

- **Ixora Solution Ltd. (fully remote)** — Dhaka, Bangladesh
  Sr. Data Scientist and Engineer — *Oct 2020 - Present*
  - ○ **ShiftSmart Data Pipeline**: Currently working to build and deploy a data pipeline for an application called *ShiftSmart*. Technologies: `GCP, BigQuery, PubSub, Python, Flask, Docker`, etc.
  - ○ **Paper Search**: Currently working as backend developer to build an NLP powered paper searching web application. Technologies: `Python, Django, Django Rest Framework, Docker`, etc.

- **Shohoz** — Dhaka, Bangladesh
  Sr. Data Scientist — *Aug 2019 - Nov 2020*
  - ○ **Corona Tracer BD**: Successfully built data pipelines, analytics and visualization and scalable data storage solution for Corona Tracer Bangladesh, a joint venture by Bangladesh government and Shohoz. This project is live at `http://tracer-admin.ctbd.corona-dghs.xyz/`. Technologies: `Python, AWS, Boto3, Bokeh, Pandas, Holoviews, Shapely`, etc.
  - ○ **Data pipelines**: Built data pipelines for analytics, insights, machine learning services and ETL purposes. Technologies: `Python, AWS, Boto3, Pandas, PySpark, Azure Service Bus, Azure Event Hub, Apache Kafka`, etc.
  - ○ **Fraud detection**: Created automated fraud detection pipelines.
  - ○ **Exploratory analysis**: Hands on exploratory data analysis of real user data.
  - ○ **User profiling**: Used machine learning to create clusters of users and automated profiling for quest planning.
  - ○ **Data mining, recommendation and others**: Developed automated priority dispatching services and used data mining techniques for provider distribution/trend analysis/recommendation.

- **Auleek** — Dhaka, Bangladesh
  Machine learning engineer — *Sep 2018 - May 2019*

- **Reve Systems** — Dhaka, Bangladesh
  Software engineer, RnD — *Mar 2017 - Aug 2018*

PET PROJECTS

- **Flatten NoSQL**: Open source python library for flattening NoSQL-like denormalized data to SQL-like data. Project link: `https://pypi.org/project/ flatten-nosql/`
- **Seeding KMeans**: My research on k-means clustering. Here I talk about the results in k-means++ paper and discusses various seeding methods of center initialization. Project link: `https://github.com/proafxin/clustering`
- **Media Recommender System**: This is an ongoing project where I tried to generalize different medias (music, game, video, etc) in one place for recommendation. Project link: `https://github.com/proafxin/media-recommendation`
- **Localizer**: In this project, I used `YOLO` to detect objects in images. Project link: `https://github.com/proafxin/Localizer`
- **DRF tutorial**: I used this project to teach some people at Ixora Solution how `DRF` (Django Rest Framework) works. Project link: `https://github.com/proafxin/drf`

SKILLS

- **Languages**: Python, C, C++, Java.
- **Data engineering**: GCP, Azure, AWS, S3, BigQuery, Boto, Kafka, Service bus, Event hub, etc.
- **Data science**: Pandas, Scikit-learn, PySpark, YOLO, PyTorch, Tensorflow, Scipy, Numpy, etc.
- **Backend**: Django, Flask, Django Rest Framework, Flask Restful, SpringBoot, etc.
- **Visualization**: Matplotlib, Bokeh, Holoviews, etc.
- **Tools**: MySQL, Mongo, Git, Jira, Azure DevOps, etc.

Publications

- **Integer Sequences: Divisible, Lucas and Lehmer Sequences**: Masum Billal and Samin Riasat, To be published in Springer Nature soon.
- **Topics in Number Theory: An Olympiad Oriented Approach**: Masum Billal and Amir Hossein, Amazon, ISBN-10: 1719920311.
- **Similarity Aggregation for Collaborative Filtering**: Sheikh Muhammad Sarwar, Masum Billal, Mahmudul Hasan, Dimitry I. Ignatov, AIST Conference. http://link.springer.com/chapter/10.1007/978-3-319-26123-2_23
- **A Nice Theorem in Multiplicative Functions**: Masum Billal, Eureka, The Cambridge University Mathematical Society, Issue 63, 2014
- **Exponent GCD Lemma**: Masum Billal, Mathematical Reflections, Issue 6, 2012
- **10th Bangladesh Mathematical Olympiad: Selected Problems and Solutions**: Bangladesh Math Booklet, 2015. https://karushib.wordpress.com/2016/05/29/bangladesh-booklet-of-math-problems-2015/

Others

- **Mathematics**: Trainer for the International Math Olympiad team, national and extension math camps, 2011-2015.
- **Programming contest**: Rank 9 at the NSU Inter University National Programming Contest, 2013
- **Programming contest**: Rank 13 at the IUT Inter-University Programming Contest, Rank 13
- **Programming contest**: Rank 17 at the ICPC Dhaka Regional, 2013
- **Programming contest**: Rank 18 at the ICPC Dhaka Regional, 2012
- **Mathematics**: Medals at regional Bangladesh Mathematical Olympiad 2009 and at regional/national Olympiad 2010.

Interests

- Mathematics
- Data science
- Data engineering
- Problem solving. Global rank 132 in Hackerrank mathematics practice section.
- Gaming. Currently I play Dota 2, Assassin's Creed games, The Witcher 3, etc.