Masum Billal

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Education

Fresh Graduate **BSc**, *CSE, University of Dhaka*, Dhaka.

Projects and Experience

2016 **Data Analysis**, *Web server log analysis and prediction of vulnerability*.
I did this project under *Threat Equation PTE Ltd, Singapore*. Analyzed web server logs to predict attacks on a particular site. For the internal logs, accuracy was 100% with mean absolute error 0%. Though accuracy would be reduced for external logs.

2016 **Web Application**, *Dashboard*.
This was another project I initially worked on under Threat Equation PTE LTD. as well. The objective was to build a dashboard using **Django** that would collect data from a plugin and show using javascript and some other tools.

2016 **Machine Learning**, *A movie recommender system*, Platform: Python, tools used: *pandas, scikit-learn, numpy etc*.
In this project I have predicted movie ratings using **Naive Bayes**. https://github.com/fifaboy/rec-mnb

2017 **Artificial Intelligence**, *Belief Propagation Simulator*, Platform: C++, This project was a simulation of the **belief propagation**, an established technique in artificial intelligence..

2017 **Machine Learning**, *A machine learning library for C++*, Platform: C++, In this project (incomplete), I am writing a machine learning library containing some popular algorithms in machine learning and data mining.. https://github.com/fifaboy/cppmllib

2016 **E-commerce web application**, *Otaku Store*, Platform: Python, Framework: Django.
This was an academic project for building an online anime store. https://github.com/fifaboy/otaku-store

2016 **Git Info Retrieval**, *Platform: Python*, Framework: Django, Rest API, I used this project primarily for learning django and rest. https://github.com/fifaboy/git-public-info

2015 **Java**, *Online Library*, Platform: Java, Framework: JSP.
An academic project for building an online library with software design patterns

2014 **PHP**, *Online File Tracker*, Platform: PHP, Framework: Codeigniter, a software solution for tracking files in a company.

Achievements

2013 **Inter-University Programming Contest**, *North South University, Bangladesh*, Rank 9.

2012 **Inter-University Programming Contest**, *IUT, Bangladesh*, Rank 13.

2013 **ICPC**, *Dhaka Regional, Bangladesh*, Rank 17.

2012 **ICPC**, *Dhaka Regional, Bangladesh*, Rank 18.

2010 **Medal in math olympiad**, *Bangladesh Mathematical Olympiad*, National, Regional.

2009 **Medal in math olympiad**, *Bangladesh Mathematical Olympiad*, Regional.

2011 − 2015 **Trainer at math camps**, *Bangladesh Mathematical Olympiad*, National, Extension and IMO math camps.

Publications

2016 **Topics in Number Theory: An Olympiad Oriented Approach**, *Masum Billal, Amir Hossein*, Currently under review by Springer.

2015 **Similarity Aggregation for Collaborative Filtering**, *AIST Conference*, Sheikh Muhammad Sarwar, Masum Billal, Mahmudul Hasan, Dimitry I. Ignatov.
http://link.springer.com/chapter/10.1007/978-3-319-26123-2_23

2015 **General LTE Sequence**, *Arxiv E-print*, Masum Billal, My paper on a generalization of Lifting the Exponent property in sequence.
https://arxiv.org/abs/1509.03288

2015 **Remarks On General Fibonacci Numbers**, *Arxiv E-print*, Masum Billal, My results on Fibonacci number.
https://arxiv.org/abs/1502.06869

2015 **Combinatorial Geometry In Olympiad**, *Accepted for Mathematical Reflections in* 2015, Masum Billal, Nur Muhammad Shafiullah.

2014 **A Nice Theorem in Multiplicative Functions**, *Eureka, The Cambridge University Mathematical Society*, Issue 63, Masum Billal.

2012 **Exponent GCD Lemma**, *Mathematical Reflections*, Issue 6, Masum Billal.

2016 **A Nice Lemma In Congruence: Thue's Lemma**, *Under review by Crux Mathematicorum, Canadian Mathematical Society*, Masum Billal.

2016 10**th Bangladesh Mathematical Olympiad: Selected Problems and Solutions**, *Bangladesh Math Booklet,* 2015.
https://karushib.wordpress.com/2016/05/29/bangladesh-booklet-of-math-problems-2015/

2015 **A Sledgehammer in Olympiad Number Theory: Zsigmondy's Theorem**, Masum Billal.

Skills

Programming languages	C, C++	Level:	Programming contests
	Python, Java, PHP	Level:	Academic project.
Tools	HTML, Javascript, MySQL, Jinja2, LaTeX, Git, Bootstrap etc		

Interests and Hobbies

Research	Optimizing algorithms or finding new ones. Studying on topics I am interested in for interesting results. Mathematics, Algorithms, Cryptography, Machine Learning etc.
Programming	Setting problems. Problemsetter at Hackerrank.
Mathematics	Finding new results and creating new problems.
Publication	Publishing articles or papers on journals.

Others

- LinkedIn: `https://www.linkedin.com/in/billalmasum93`
- Blog: `https://karushib.wordpress.com/`

References

- *Mahbub Majumdar*, Professor, Computer Science & Engineering Department, BRAC University, Buidling-5, Floor-4th, Room: UB50402
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  Email: `majumdar@bracu.ac.bd`