Masum Billal

Education

Final year student
BSc., *University of Dhaka*, Dhaka, *2.7 (expected)*.

Achievements

Programming contest
Participated in three ICPC Dhaka regional programming contests, *Also participated in some inter-university programming contests.*.

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*.

Projects

2016
Data Analysis and Web Application, *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, worked on building a web application for the company. For the internal logs, accuracy was 100% with mean absolute error 0%. Though accuracy would be reduced for external logs.

2016
Machine Learning, *A movie recommender system*, Platform: Python, tools used: *pandas, scikit-learn, numpy etc*.
In this project I have predicted movie ratings based on machine learning algorithms. `https://github.com/fifaboy/rec-mnb`

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..

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: Thues 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, Problems and solutions I and some other trainers discussed in math camp, IMO camp..
https://karushib.wordpress.com/2016/05/29/bangladesh-booklet-of-math-problems-2015/

2015   **Number Theory Problems From IMO**, *Art of Problem Solving*, A collection of International Mathematical Olympiad problems..
http://www.artofproblemsolving.com/community/c6h1161504p5531708

2015   **Collection of Number Theory Problems: APMO**, *Art of Problem Solving*, Masum Billal, A collection of Asian Pacific Mathematical Olympiad Number Theory problems.
http://www.artofproblemsolving.com/community/q3h1160887p5526295

2015   **A Sledgehammer in Olympiad Number Theory: Zsigmondys Theorem**, Masum Billal.

2015   **Combinatory Problems**, Masum Billal.
A combinatorics tutorial in Bangla.

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.
Gaming	Playing Dota 2, Fifa etc.

Others

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- Git: https://github.com/fifaboy
- Blog: https://karushib.wordpress.com/

References

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  Email: majumdar@bracu.ac.bd