



# Masum Billal

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## Education

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

## Achievements

- 2012 **IUT Inter-University Contest**, Rank 13.
- 2013 **ICPC**, *Team member of DU Mango*, Rank 17.
- 2012 **ICPC**, *Team member of Assault Everyone*, 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.

## 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, Dmitry I. Ignatov.  
[http://link.springer.com/chapter/10.1007/978-3-319-26123-2\\_23](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 **10th 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: Zsigmondy's Theorem**, Masum Billal.
- 2015 **Combinatory Problems**, Masum Billal.  
 A combinatorics tutorial in Bangla.

## Skills

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

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## 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.

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## Others

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

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## References

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