Bishal Basak Papan

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Education

Bangladesh University of Engineering and Technology(BUET) 2016 – 2021
B.Sc in Computer Science and Engineering, CGPA: 3.50 on a scale of 4.00
Thesis Supervisor: Dr. Md. Saidur Rahman
Thesis Concentration: Algorithms, Graph Theory, Bioinformatics

Rajshahi College 2013 – 2015
Higher Secondary School Certificate, GPA: 5.00 on a scale of 5.00

Govt. Laboratory High School, Rajshahi 2005 – 2013
Secondary School Certificate, GPA: 5.00 on a scale of 5.00

Selected Projects

Hall Management System for BUET | *JavaFX, Oracle, SQL, CSS, C++* Code

- Developed a residential hall management system for BUET students using JavaFX as frontend and Oracle as backend.
- Can be used by students and hall and university administrators in their respective modules.
- The central admin(s) can add a new residential hall, update the capacity/room count of a hall, assign a hall to each student, allow a student to change hall or resident status upon request, set fees for the students and assign administrators and staff members to the halls.
- The admin(s) of a hall can assign a room to each resident student, change the room of a student upon request, change payment status for a fee of a student, organize events in the hall, keep information about the sponsors of those events and form teams for different inter-hall events.
- A student can request to change his room within a hall, can request to change the assigned hall or his/her resident status, observe the pending and paid fees etc.

eMarketPlace | *PHP, HTML, CSS, JavaScript, MySQL, Laravel* Code

- A simple E-commerce website containing three different modules: customer module, vendor module and admin module.
- Customers can search and order different categories of products online, give review of products and provide feedback about the website.
- Vendors can add new product or update existing products' attribute.
- Admin can overview the monthly order counts, approve new vendor accounts, add product attributes and categories, and change an order status.

Class Test Management | *JavaFX, CSS* Code

- This software will help a department or the entire institution to organize and manage the class tests for all the students.
- A student can see the routine of the class tests for his/her courses and the seat plan of the class tests.
- A teacher is informed about the dates of the class tests of the courses that he/she teaches. This software will also inform the teacher about the date and room no. of the class tests that he/she has to invigilate.

Modification of MAC802.11 Protocol Using NS-2 | *NS-2, Shell, Awk, Gnuplot* Code

- Made some modifications in original MAC protocol's congestion window size, preamble length, beacon interval, channel time etc.
- Varying the number of static & mobile nodes in a network, different metrics of the modified protocol were analyzed and compared with the original protocol using NS2.

Two Player Chess | *C++, iGraphics* Code

- A two player chess game where two human players can give their moves sequentially on a single PC.
- All the basic rules of the chess game including stalemate and inactive move limit are implemented.

Asteroids Mini-game | *C#, Unity* Code

- A gamer can control a spacecraft and fire at randomly moving asteroids using keyboard buttons.

- If an asteroid is hit by a bullet, a sound effect is created and it splits into smaller asteroids. If the spacecraft is hit by an asteroid, it is destroyed after creating a special sound.

Longest Path Problem | *Tex, Python* Code

- A complete analysis of the longest path problem is done and some metaheuristics algorithm has been implemented to find solutions to this problem.

Predicting Footballers' Injuries from Past Injuries | *Python* *(Ongoing)*

- Trying to develop a deep learning based model to predict football players' injuries using time series classification and forecasting techniques.
- Developed crawlers to collect data from a website and collected injury history along with other relevant data of around 4000 footballers currently playing.

Research Works

Grid Graphs are 2-Interval Pairwise Compatibility Graphs

Collaborator: Protik Bose Pranto
Supervisor: Dr. Md. Saidur Rahman
Status: Under review at Discrete Mathematics, Algorithms and Applications

- Proved that grid graphs and a class of 3D grid graphs are 2-interval PCGs
- Developed algorithms to construct the PCTs of these two graph classes.

k-Safe Labelings of Connected Graphs Code

Collaborator: Protik Bose Pranto
Supervisor: Dr. Md. Saidur Rahman
Status: Under review at International Journal of Computing Science and Mathematics

- Developed an algorithm that gives a k-safe labeling for any connected graph
- Implemented the algorithm using NetworkX library of Python3
- Found an upper bound of the output of this algorithm

Technical Skills

Languages: Python, C/C++, Java, SQL, Matlab, PHP, JavaScript, Bash, C#, HTML/CSS
Frameworks: JavaFX, OpenGl, Django, Unity, Laravel
Environments: CodeBlocks, Microsoft Visual Studio, PyCharm, Jupyter Notebook, NetBeans, Eclipse
Tools: Git, Overleaf, yEd, Lucidchart, Microsoft Visio
Simulators: NS-2, Autocad, Wireshark, Cisco Packet Tracer
Operating Systems: Windows, Ubuntu, XV6
Libraries: Pandas, Networkx, Numpy, Matplotlib, Scrapy, TensorFlow

Achievements

1. 2^{nd} Runner-up in Bangladesh National Math Olympiad 2011.
2. 10^{th} in Bangladesh National Physics Olympiad 2013.
3. 14^{th} in Bangladesh National Science Olympiad 2015.
4. Champion in Divisional Math Olympiad 2010, 2011, 2013.
5. First in Divisional Physics Olympiad 2013.
6. Board scholarships(talentpool) in SSC and HSC examinations.

References

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