PROCEEDINGS OF THE CSE SYMPOSIUM 2016

UNIVERSITY OF MORATUWA

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Editorial

We are delighted today to present the proceedings of CSE Symposium 2016, the annual research symposium of the Department of Computer Science & Engineering (CSE), University of Moratuwa.

CSE Symposium 2016 has given the opportunity to the undergraduates of CSE of the cohort 2012 to publish and present their individual project carried out as part of the module CS3202 Software Engineering Project, in 2015. We received 100 submissions, which initially went through the editorial review that resulted in 61 submissions qualifying for the review process. These 61 papers were subjected to a stringent, two-part, double blind review process, first by the Editors and then by eminent group of reviewers; 15 high quality papers were selected for the final program resulting in a competitive acceptance rate of 15% for this year.

We appreciate the hard work put by every student in their software engineering projects and for compiling a set of high quality scholarly articles. We believe the papers included in this proceeding convey the essence of innovative, high impact and research led development projects carried out by CSE undergraduates during their Semester 5 academic activities.

The first paper titled "Voice based email/Skype/call system for the blind -Desktop and Android application" addresses an important issue, where visually impaired people are able to effectively use ICT technologies such as email, skype and phone call. This application uses only mouse operations and speech to text conversion and vice-versa. The system is completely based on user friendly interactive voice responses and compatible with both Android phone and desktop application.

The second paper titled "Unified Search and Browse Interface for MusicBrainz" focusses on building a unified search and browser interface tool for MusicBrainz music encyclopaedia website with a user-friendly wrapper through a web service. Specifically, the tool provides an interface to combine the advanced query search with a simple indexed search so that the user can search without any previous knowledge about the data and enables a high level of exposure of the metadata in the MusicBrainz database.

The third paper titled "Sala: Sales Analysis, Prediction and Promotion System" paper presents an interesting tool for sales data analytics that supports both desktop and android mobile application. This work has considered decision support systems, where users can analyse their business domain data and provides a complete solution facilitating both retail owners and customers. The tool helps to identify sales trends and predict future sales, hence maximize sales and profit.

The next paper titled "Multiplayer Android Game" describes a multi-player version of the "Omi" card game. This application is developed for Android smart phones using client-server architecture. The main feature of the application discussed in this paper is it's 'multi-player' capability which is not available in a similar application named 'Omi'. In this application players are connecting over a Wi-Fi connection.

An interesting work is presented in the paper titled "Xpernal 1: Grade Performance analyser". This automated tool provides user friendly interfaces to both lecturers and students to manage and analyse grades of the students, calculate the GPA and compare performances of students. Further, the system supports to predict a student grade using the past grades of that module.

Another game application for Android platform is presented in the paper titled "Floating Polygons: Crowdsourcing touch screen inputs for a contextual data model" with the aim of obtaining touchscreen data models via an interesting game. This game captures user interactions with the touch screen while it is being played and creates a data model that categorise into gesture types, screen sizes and screen orientations to facilitate application developers.

An application to find bus routes in Sri Lanka is presented in the next paper titled "Ceylon Bus Routes: A bus route guide". The application displays the best routes for user requests and uses GPS technology to track user's location. Further, this application facilitates moving commuters by displaying all routes, and details about different routes and bus stops.

A human movement visualizer tool is proposed in the paper titled "Big Data Visualization". This tool provides populating flow data between regions of a given map and can be integrated with existing analysis tools. Since this tool visualizes high crowd and vehicle density, this can be used for planning and decision making of transportation system in Sri Lanka.

Both web based application and an android application for lottery purchasing and automatic results checking is presented in the next paper titled "Online Lottery Purchasing & Automatic Results Checking System". The system facilitates to purchase lotteries based on the desire of the buyer and checks results ensuring the user privacy.

Another interesting Android application is presented in the paper titled "Dopa - A Generalized Android App for Memory Enhancement". This paper discusses the ways to adopt visual learning among Autodidacts to assess learning progress, predict performance, use memory techniques and track potential issues. This application promotes self-motivated and self-taught students allowing reminders to utilize and ingrain visualized learning as users' second nature.

The next paper titled "AskFedora: UX/UI and Functionality Overhaul" presents an interface redesign approach for the AskFedora community knowledge base for Fedora users. This work has conducted in three main phases, namely, user experience analysis, mock-ups development, coding and integration with Askbot and has followed the concepts of responsiveness and cross browser compatibility.

Another Android game application is presented in the paper titled "Fill in the Blanks: A Touch Data Gathering Game to Improve UI Designs". This paper presents a computational model to capture user behaviour relating to touch screen inputs such as drag and drop, rotate, pinch, zoom, etc. which are transferred for analysis using crowdsourcing, thereby enhancing usability of UI.

A web based tool for visualizing propagation of information in network based models is presented in the next paper "PropNets Visualizer: A web based tool to visualize information propagation in networks". This is an easy to use and extensible tool that generates dynamic visualizations of network flow data.

The next paper titled "Personal Budget Manager Android Application" presents a mobile application that manages personal finances by recording and analysing the transaction information. This application displays an overview of transactions together with monthly balance so that the user can plan for future expenses accordingly.

The final paper titled "Blood Bank Management System" describes an android application that enables blood donors to help the needy. This application allows hospitals to send blood request to registered donors based on their current distance to the hospital.

We would like to extend our sincere appreciation towards many people who made the CSE Symposium 2016 a success and these proceedings possible. A special thank goes to the Head of the department and the academic staff of CSE for their efforts in developing student skills for research based learning. The support given by the external reviewers enabled us witnessing a fully-fledged symposium with high quality research work being presented. The members of the programme committee and the organizing committee of CSE Symposium 2016 did their best efforts to make this great event possible; a big thank to every one of you!

We wish the authors all the best for their future research and academic work while looking forward to another great CSE Symposium in 2017.

The Editors,
CSE Symposium 2016

8th December, 2016

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