Innovative Minds: Technocrats with Vision is a book which unfolds the Dimensions of Compiler Design and Microprocessor is a comprehensive grassroots discussion on original research done by the 101 students of B.Tech (Computer Science), Maharaja Agrasen College, University of Delhi in the area of System Programming and Compiler Design and Microprocessor as a part of their course curriculum. It has been brilliantly mapped by the students and presents a new kind of innovation and technique for discussing the concerns, aspirations and fears.

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Editor-in-chief

Dr. Priya Gupta is working as Assistant Professor in the Department of Computer Science at Maharaja Agrasen College, University of Delhi. Her Doctoral Degree is from BIT (Mesra), Ranchi. She has more than 12 years of teaching and 5 years of Industry Experience. She has published a book on CRM Systems and Cross Selling in Indian Banking Industry and 20 research papers in the area of management and computer science published in the national and international journal of repute. Her research interest lies in the area of Theory of Computation, Compiler Design Data Mining, Artificial Intelligence, Customer Relationship Management, Payment Systems etc.

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AUTHORS**PRESS**

Foreword

I would like to extend my sincere and best wishes to the students, teachers and staff of the Department of Computer Science for organizing Vzeon '16 on 18-19th March, 2016 at Maharaja Agrasen College.

There have been many hours of hard work leading up to "Innovative Minds", "Dxiners" and "Clash of Lans" under the annual Tech Fest VZEON '16. The efforts of the session "Innovative Minds" where the students of B.Tech (Computer Science) presented their original ideas in the form of research paper and publishing it in a book form titled, "Innovative Minds – Technocrats with Vision" are truly deserving of recognition and praise. Reputation of Maharaja Agrasen College depends upon the quality of its teaching learning. I do hope that the students will use this opportunity to increase their commitment to excellence, personally, as well as within their professional networks.

All the Best!!

Dr. Sunil Sondhi
Principal,
Maharaja Agrasen College,
University of Delhi.

Preface

Innovative Minds: Technocrats with Vision is a book which unfolds the Dimensions of Compiler Design and Microprocessor is a comprehensive grassroots discussion on original research done by the 101 students of B.Tech (Computer Science), Maharaja Agrasen College, University of Delhi in the area of System Programming and Compiler Design and Microprocessor as a part of their course curriculum. It has been brilliantly mapped by the students and presents a new kind of innovation and technique for discussing the concerns, aspirations and fears. This book has 26 research papers instantaneously presented as follows:

- **Analysis of 8086 Microprocessor and Development of GUI Based VASME (Virtual Assembly Emulator)**—an 8086 Microprocessor Simulation: The purpose of this research was to make a computer assembler which provides an 'Editor' environment to the user who wishes to write 8086 micro program on it. The program written by the user was then fed into your own compiler which compiles it and showed errors or warnings if encountered any. With this new enhanced compiler simulator, it has become very easy for students to learn about assembly languages and their real time implementation.

Contents

Analysis of 8086 Microprocessor and Development of GUI Based VASME (Virtual Assembly Emulator): An 8086 Microprocessor Simulation

NIKHIL GOLA, ROHIT, NOAMAN SHAHID SIDDIQUI AND KARTIK

ABSTRACT

The title of this project is called Virtual Assembly Machine Emulator (VASME x86), which is platform independent and requires bare minimum system requirements. Moreover, the coding of VASME is done in JAVA programming language, which was necessary to attain platform independency. The purpose of this project was to make a computer assembler which provides an 'Editor' environment to the user who wishes to write an 8086 micro program on it. The program written by the user was then fed into this compiler which compiled it and showed errors or warnings if encountered any. This project took three weeks to complete in with added features like debugger and a user-friendly GUI. With this new enhanced compiler simulator, it has become very easy for students to learn about assembly languages and their real time implementation.

Keywords: Vasme, Microprocessor, Emulator, Assembly, Compiler

INTRODUCTION

Virtual Assembly Machine Emulator (VASME) x86 is a computer assembler simulator. It is platform independent and it provides an 'Editor' environment to the user where he/she can write their 8086 micro program. The program written by the

Innovative Minds: Technocrats with Vision is a book, which unfolds the dimensions of Artificial Intelligence, and Information Security is a comprehensive grassroots discussion on original research done by the students of B.Tech (Computer Science), Maharaja Agrasen College, University of Delhi in the area of Artificial Intelligence and Information Security as part of their course curriculum. The innovative ideas on the above said subject has been brilliantly mapped in the form of Poster and further converted into papers discussing the concerns and aspirations of the students.

■ **Dr. PRIYA GUPTA**
Editor-in-chief

Dr. Priya Gupta is working as an Assistant Professor in the Department of Computer Science at Maharaja Agrasen College, University of Delhi. Her Doctoral Degree is from BIT (Mesra), Ranchi. She has more than 13 years of teaching and 5 years of Industry Experience. Her research interest lies in the area of Machine Learning, Theory of Computation, Compiler Design, Data Mining, Artificial Intelligence etc. This book titled *Innovative Minds – Technocrats with Vision* - Volume-II contains the paper which displays out of the box thinking, sincere and whole-hearted hard work by the students of B.Tech (Computer Science) over and above their course curriculum.

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Mr. Sunil Kumar is working as an Assistant Professor in the Department of Computer Science at Maharaja Agrasen College, University of Delhi. He is pursuing his Doctoral Degree from Jawaharlal Nehru University (JNU), He is also M.Tech(CS) from JNU and MCA from Jamia Millia Islamia, New Delhi. He has more than 2 years teaching Experience. His research interest lies in the area of Internet Security, Networking, Computer Graphics, Compiler Design Data Mining and Database Management System etc.

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