Bits & Bytes

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ISSUE BYTES

Editorial Board
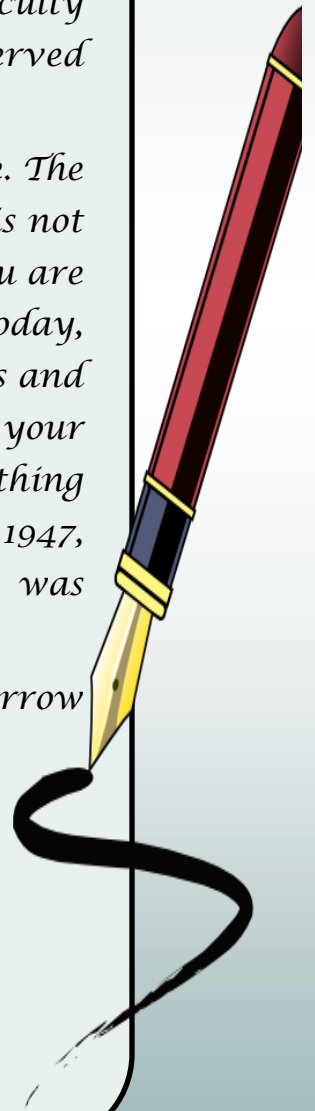
From the Editor's Desk

Dear Readers,

Welcome to the new issue of Bits & Bytes. Hope you all had a nice and relaxing summer break and are now energetic for the Fall semester. On behalf of the Editorial Board, I cordially welcome newly inducted faculty members and wish them a successful beginning. I would also take this opportunity to congratulate all the faculty members who have recently earned their well deserved promotions. Well Done and Keep it UP!

Great achievement is usually result of great sacrifice. The most important decision about achieving your goal is not what you are willing to do to achieve it but what you are willing to give up. What appears to be a sacrifice today, will actually be an investment in your future success and happiness. If you do not sacrifice for your goals, your goals will be sacrificed. History also attests that nothing great was ever accomplished without sacrifice. In 1947, freedom was not just granted to Pakistan, it was achieved after a long struggle and hard sacrifices.

Let's rekindle the spirit of sacrifice, for a better tomorrow and for a bright future. Together, We Can!

Best Wishes,

Saima Jawad

Rector's Meeting with the Faculty

The Honorable Rector of Bahria University, Vice Admiral (R) Tanvir Faiz held meetings with the faculty members of different departments of BUIC during July 2016. A meeting with the CS Department faculty took place on 20th July 2016. The meeting was also attended by the Pro-Rector, Rear Admiral (R) Saleem Akhtar, Registrar, Rear Admiral (R) Shahid Saeed, Director Campus, Commodore (R) Syed Hasan Mustafa and Director HR, Captain (R) Imtiaz Khan. The main agenda of the meeting was to discuss issues related to the academic excellence of BU and welfare of the students. Dr. Faisal Bashir, HoD CS Department, commenced the meeting by presenting an overview of the departmental structure and activities. An open discussion session was carried out afterwards. The Honorable Rector stressed upon the importance of performance based evaluation system and motivated the faculty to actively participate in research and academic administration. Faculty members pointed out lack of professional development trainings and student disciplinary issues. Concerns regarding plagiarism and inculcation of moral values amongst students were also discussed. The meeting concluded with words of encouragement and appreciation from the Honorable Rector.

8th Departmental Board of Studies

The 8th Departmental Board of Studies (DBOS) of CS Department was held on 4th August, 2016. Dr. Faisal Bashir, HoD CS Department presided over the meeting. All the senior faculty members (Assistant professors and above) attended the meeting along with Mr. Ali Iqbal from ICT R&D as the external member. It is also worth mentioning that Dr. Sumaira Kausar has been appointed as the Secretary of the DBOS. The main agenda item of the meeting was Curriculum revision of BS (IT). It was observed that the current curriculum of BS (IT) needs some revisions to get it in line with the HEC recommended curriculum. In this regard, a curriculum revision committee was formulated to suggest changes in the BS (IT) curriculum to make it updated and more effective. The committee was headed by Dr. Faisal Bashir and included Mr. Rashid Karim, Dr. Asfand Yar and Mr. Ghulam Ali Mirza. The revision committee came up with a revised curriculum for approval by the DBOS. Dr. Faisal pointed out that there should be a system to minimize the FYP proposal rejection cases. After thorough discussion, it was decided that faculty members will propose project ideas and a group of subject experts will vet the proposed ideas. All the vetted ideas will then be published by the Project Coordinator for the students. It was also decided unanimously that each faculty member has to supervise at least 2 and can supervise at most 4 projects per semester.

Short Summer Courses

The CS Department, BUIC is leaping forward in academics by using innovative and rigorous teaching methods resulting in improving quality of learning and research. Recently, CS Department in collaboration with the Leadership Development Centre (LDC), BUIC offered three short courses. The courses were of two weeks duration each and were offered in July-August 2016. The main objective of these courses was to bridge the Industry-Academia gap by providing students a hands on exposure to latest tools and techniques being use in the software industry.
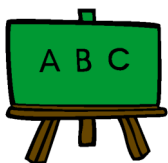
⇒ The **Mobile Application Development** course covered Android development and was taught by visiting faculty member Mr. Muhammad Usman.

⇒ The **C#.Net** course covered the fundamentals of Windows application development using C# language and dot Net platform. It was taught by Mr. Sabah Uddin Waqar, Jr. Lecturer of CS Department .

⇒ The **Web Development** course covered basics of Web designing and development using state of the art tools. It was conducted by Mr. Usman Shafique, who is a Lecturer in the CS Department.

The CS Department plans to offer more short courses and workshops in the coming semesters to prepare students to meet industrial expectations.
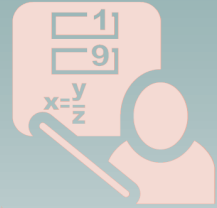
Basic English Course for BU Staff

The CS Department, BUIC brings together quality faculty and energetic student body. During Summer 2016, a Basic English Literacy course was organized for the staff members as a Community Support initiative. The course was conducted by a group of 4th semester BSCS students under the supervision of Mr. Muhammad Shujaat. The main objective of the course was to familiarize the staff members with basic English language communication. The duration of the course was three weeks and classes were held daily. The course covered Sentence Structure (Subject, Verb, Object), Parts of Speech (Noun, Pronoun, Adjective, Verb, Adverb, Prepositions, Conjunction, Interjection) and Letter and Application writing. The Tutors worked hard to deliver the contents and prepared worksheets for every class. Two quizzes were also scheduled to assess the progress of participants. At the conclusion of the course, certificates of appreciation were awarded to the participants by Dr. Muhammad Muzammal, Associate Professor of CS Department. Dr. Muzammal appreciated the students for conducting the course and advised the participants to continue their efforts to improve their communication skills.

FACULTY WATCH

Faculty Promotions

It is a time for celebration again as a number of CS Department's faculty members were given due recognition for their efforts and hard work in the form of timely promotions. Dr. Muhammad Muzammal, Senior Assistant Professor has now been promoted as an Associate Professor. He is also the Post Graduate Research Coordinator. Dr. Shagufta Henna has been promoted as a Senior Assistant Professor. Her area of expertise is Wireless Networking. Mr. Humayun Zaheer joined Bahria University in 2014 and has now been promoted as a Senior Assistant Professor. He is our Evening Program Coordinator as well. Mr. Khushal Shah also joined Bahria University in 2014 as a Senior Lecturer and has now been promoted as an Assistant Professor. Ms. Momina Moetesum and Ms. Anaum Ayaz both joined the CS Department as Lecturers in 2014 and are now Senior Lecturers. Mr. Usman Shafique and Engr. Zain Bin Khalid have been also been promoted to Senior Lab Engineers. The promoted faculty members hosted a lunch for their colleagues at Tandoori Restaurant in F-10 on 28th of July 2016. The HoD CS Department, Dr. Faisal Bashir, made the congratulatory address while Mr. Fazal Wahab, the former HoD presented bouquets to the hosts. The faculty members and the HoD thanked the hosts and wished them good luck for their future endeavors.

Welcome Aboard!

On the behalf of faculty and students of the CS Department, we welcome the newly inducted faculty members and sincerely pray for their bright future ahead.

Sameen Arshad has joined the CS department as a Senior Lecturer. She has done BS(CS) from NUST and MS from University of Limerick, Ireland. Sameen majors in Software Engineering and her Master's thesis was "Comparing software metric tools in JAVA." Furthermore, Ms Sameen has also worked as a Software Engineer at AdvOSS Ltd, Pakistan and has worked off-shore as Quality Assurance Engineer with Wissen Work, USA. We welcome Sameen to the CS Department and wish her good luck.

Arshad Farhad has joined the CS department as a Senior Lab Engineer. He holds a BIT(Hons) from University of Peshawar and MS(T&N) from Bahria University, Islamabad. He won a Silver Medal in MS and has 4 publications in International Journals to his credit. Furthermore, Arshad has attained travel grant from HEC, Government of Pakistan worth of $1635 for the presentation of research paper titled: "A Delay Mitigation Dynamic Scheduling Algorithm for the IEEE 802.15.4 based WPANs" in International conference on Industrial informatics and computer system (CIICS16). The conference was held in Sharjah, UAE, in March 2016. We wish Arshad a bright and successful career ahead.

Maryam Khalid has recently been appointed as a Senior Lab Engineer. Maryam holds a BS(SE) from MCS, NUST and MS(IT) from SEECS, NUST. Maryam has been a Merit scholarship holder at NUST throughout her Bachelor's degree. Maryam has also presented a review paper at 3rd International Conference on High Capacity Optical Networks and Enabling Technologies at Charlotte, NC, USA in September 2006. Maryam is a valuable addition in the CS Department and we wish her every success in the future.
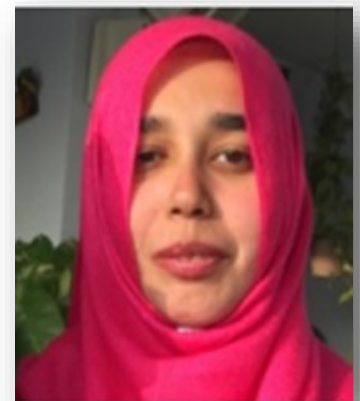
WELCOME TO THE TEAM

Welcome Aboard!

Junaid Aslam has recently completed his BS(CS) from Bahria University and now has joined the CS Department as a Lab Engineer. His final year project was "Brain Computer Interfaced Game Controller." Junaid has a list of accomplishments that include award for most Illustrious Research Publication titled "A Brain Computer Interface (BCI) based Game Controller using Expressive and Cognitive Signals" at National Conference on Emerging Trends and Innovations in Computing & Technology (NACTICT'16), as well as Certificate of Appreciation for conducting a workshop on 'C# .NET Development' at BUIC. We wish Junaid best of luck in his career.

Umarah Qaseem has also joined the CS Department as a Lab Engineer. She has done her BS(CS) from COMSATS Institute of Information Technology. Umarah was a scholarship holder during her BS and her final year project was "Cross platform Compiler and AI dialogues in C# Xamarin". We wish her a bright and successful career ahead.

Anum Kaleem and **Usman Shafique**, Junior Lecturers of CS Department have recently been selected as Lecturers. We extend heartiest felicitations to both of them on their selection and wish them a bright future ahead.

WEDDING WISHES

Zain bin Khalid, Senior Lab Engineer has recently tied the knot. The Walima ceremony was held on 7th August, 2016 at Aura Grande, E-11, Islamabad. It is our pleasure to extend facilitations to Zain with warm wishes for a blessed married life. May the years ahead be filled with joy and happiness.

Heartiest Congratulations!!!

Congratulations

Bits & Bytes is glad to announce that Dr. Asfand Yar, Assistant Professor of CS Department has been blessed with a baby girl on August 15, 2016. The baby is named Yousra. May the new addition be a source of happiness for the whole family.

Happiest felicitations to the proud parents!!!

CSP @ OSCS

Out of School Children's School (OSCS) is a project of a charitable organization, International Foundation for Education Empowerment and Learning, (IFEEL). The main aim behind OSCS is to educate and inspire under privileged children of the society to become constructive citizens, equipped with high moral and ethical values and the required skills to lead a beneficial life. At OSCS children are given free primary education in a relatively short duration so that they are prepared to enter main stream education with high level of moral and ethical values. They are also provided free lunch, books, note books, stationary, uniform and shoes. Based in Islamabad and Rawalpindi, OSCS schools are currently functioning at ten different locations. The premises for most of these branches are graciously given by the Federal Directorate of Education in their School buildings in Islamabad (http://oscschool.org/).

Every student in the undergraduate program of Bahria University is required to serve the community for 40 hours, during his/her degree program (w.e.f Spring 2013). The main objective of Community Support Program is to encourage students to work for different NGOs to inculcate a sense of responsibility and commitment to serve the community. On 20th July 2016, the CSP Coordinator of CS Department, Mrs. Saima Jawad along with Ms. Anum Kaleem held a meeting with the OSCS management to identify the community support requirements and opportunities. Subsequently, with mutual understanding, following CSP activities were arranged for the CS students:

IFEEL Website Development: Two 8th semester students of CS Department, Hammad Tahir and Hussain Ahmed have developed a website for the International Foundation for Education Empowerment and Learning, (IFEEL). Initially, they had a detailed meeting with the OSCS coordinator and IT administrator to discuss the underlying issues being faced by the teachers and administration. It was therefore decided that the Foundation needs a structured website with database connectivity.

Subsequently, the volunteers gathered the necessary information from the staff and put their web designing skills to develop the website (http://www.ifeel.pk) as their CSP degree requirement.

Student Tutoring Sessions: On the request of OSCS management, two groups of CS Department students conducted tutoring sessions in the E-11 and F-11 branches. It was a very healthy activity as OSCS students got exposure to different teaching and learning styles. The tutors provided individual attention to their students and focused on improving written and verbal communication. The duration of this activity was two weeks and there were five students in each group.

OSCS Student's Data Entry: During the meeting with the OSCS management, it was observed that all the student records were being stored in paper files and are being maintained manually. It was, therefore, mutually agreed to store the student's data in the database of OSCS website. This task was assigned to a group of ten 4th semester students of CS Department. It took volunteers about two weeks to upload and catalogue student's data on the OSCS website.

IFEEL Employee's Database: A group of CS Department students are developing a database application for IFEEL. The application will enable easy storage, retrieval and access of all the employees and volunteers data.

Independence Day Celebrations: On the 12th August 2016, the students of CS Department BUIC organized a fun filled event at the OSCS E-11 branch to mark the Independence day celebrations. The event kicked off with the recitation of the Holy Book followed by the joint singing of National Anthem by all the participants. Later, different sports competitions were held for the OSCS students. The event concluded with a prize distribution ceremony.

Visit to the Park: A trip to the park was arranged by the volunteers of the F-11 branch on the last day of their CSP assignment, The students happily participated in different fun activities and enjoyed snacks along with their teachers and tutors.

The most important aspect of these CSP initiatives is that students performed their assigned tasks with commitment and responsibility and exhibited true community support spirit. It is expected that this experience will have positive effect on personal and professional development of students.

BACSAP Bulletin

BACSAP Events for Fall 2016

S.No	Month	Tentative Date	Event
1	Sept	1-2	Orientation Seminar
2	Sept	19-22	BACSAP Registrations
3	Oct	7-8	Speed Programming Competition
4	Oct	15	Hiking Trip
5	Nov	18-20	Bahria Cup
6	Nov	24-25	Student's Research Competition
7	Dec	29-30	Projects Gala

PLAN.LEARN.EXCEL

TOGETHER WE CAN

Tech Bits

New Technology for improved Parallel Computing

European Union's REPARA project has developed and registered new technologies that are expected to make parallel computing applications more energy efficient, less expensive, and easier to develop and maintain. The continuous quest for more power has seen our computers evolve from machines with a single processing component to complex architectures combining the likes of CPUs with multiple cores, GPUs and DSPs. However, it is common knowledge that these technologies have much room for improvement when it comes to performance and energy consumption. Grouping experts in software engineering, development tools and computer hardware, it originally aimed to achieve a unified programming model for heterogeneous computers, that is, a transformation of existing source code so that it can be run with multiple graphic cards and reconfigurable hardware.

The project work consisted, amongst other things, in source code 'refactoring', a technique used in software engineering to improve the internal structure of a program without altering its observable behavior. Three fundamental properties of the original source code were improved: performance, energy efficiency and maintainability. These software products can help developers to offer engineering services to third parties by simplifying the development process. The engineers need to fine-tune a software product in a parallel heterogeneous environment, which will significantly reduce development costs and increase software development industry competitiveness. ' said Prof. García. A large panel of markets, including health, transportation, robotics and industry – for the analysis of defects in manufactured parts. Thanks to EU funding to the tune of EUR 2.6 million, the team has developed and registered various technological products that they may commercialize with an interested European company.

Islamabad Model United Nations

The Islamabad Model United Nations (IMUN) conference was a premier debating competition that focused on discussing and resolving issues in different circumstances under the agenda of eight well established committees. The Conference was a three-day simulation where delegates took the role of diplomats and nations alike, all the while striving to solve international issues and promote welfare and peace. Two students of BUIC, Faizan Ejaz, and Talha Afzal participated in IMUN '16 as core delegate of Artificial Intelligence Ethics Board (AIEB) representing the personalities Jason Silva (futurist) and Ray Kurzweil (futurist). The base topic of debate was "*The Arrival of a new Technological Revolution*".

Three days of exhausting debate was held that cleared many concepts and doubts about the new upcoming technological problems and how to deal with those problems in the near future, the policies of governments and personalities towards AI.

Reported by Faizan Ejaz (BSCS 4B)

Research Review

Outstanding Research

Research is vital for any academic community. Faculty of the CS Department at BUIC maintains a rich research environment. Faculty publications in national and international platforms, research grants, projects and awards are evidence of an active research culture. Recently two of our faculty members were awarded cash rewards from the Bahria University for their publications in internationally recognized journals.

Dr. Sumaira Kausar, Assistant Professor, received a cash reward of rupees fifty thousand for her publication in the International Journal of Pattern Recognition and Artificial Intelligence. The title of the paper is "**A Novel Mathematical Modeling and Parameterization for Sign Language Classification**" and the abstract is given below:

Abstract

Sign language recognition (SLR) has got wide applicability. SLR system is considered to be a challenging one. This paper presents empirical analysis of different mathematical models for Pakistani SLR. The proposed method is using the parameterization of sign signature. Each sign is represented with a mathematical function and then coefficients of these functions are used as the feature vector. This approach is based on exhaustive experimentation and analysis for getting the best suitable mathematical representation for each sign. This extensive empirical analysis, results in a very small feature vector and hence to a very efficient system. The robust proposed method has got general applicability as it just need a new training set and it can work equally good for any other data set. Sign set used is quite complex in sense that inter-signs similarity distance is very small but even then proposed methodology has given quite promising results.

Mr. Ghulam Ali Mirza, Assistant Professor, has won cash award of rupees twenty five thousand for his journal publication titled, **"Multilingual Artificial Text Extraction and Script Identification from Video Images".** The paper published in the International Journal of Advanced Computer Science and Applications (IJACSA). The abstract of the paper is given below:

Abstract

This work presents a system for extraction and script identification of multilingual artificial text appearing in video images. As opposed to most of the existing text extraction systems which target textual occurrences in a particular script or language, we have proposed a generic multilingual text extraction system that relies on a combination of unsupervised and supervised techniques. The unsupervised approach is based on application of image analysis techniques which exploit the contrast, alignment and geometrical properties of text and identify candidate text regions in an image. Potential text regions are then validated by an Artificial Neural Network (ANN) using a set of features computed from Gray Level Co-occurrence Matrices (GLCM). The script of the extracted text is finally identified using texture features based on Local Binary Patterns (LBP). The proposed system was evaluated on video images containing textual occurrences in five different languages including English, Urdu, Hindi, Chinese and Arabic. The promising results of the experimental evaluations validate the effectiveness of the proposed system for text extraction and script identification.

Rector's Honor Students for Spring 2016

BS (CS)	
Maryam Bibi	3.87
Sumbal Khan	3.63
Atta Ur Rehman Shah	3.66
Khawaja Muhammad Bilal Mukhtar	3.79
Mehreen Kanwal	3.6
Muhammad Fahad Minhas	3.89
Muhammad Shahnawaz Khan	3.51
Rashid Hussain	3.76
Sundas Sohail	3.75
Zunera Seher	3.71
Marium Fayyaz	4
Muhammad Bilal Arshad	3.75
Rana Muhammad Usman Nasir	3.69
Tariq Aziz	3.53
Kazim Ali	3.61
Muhammad Hassam Aslam Khan	3.7
Muhammad Tayyab	3.93
Abdur Rehman Anwar	3.82
Manghangir (Alias) Sham Sunder	3.72
Muhammad Ejaz	3.65
Suneel Kumar	3.64
Aima Zahoor	3.71
Huma Rehman	3.53
Jan Muhammad Zakria	3.58
Mahnoor Ejaz	3.55
Mariam Sajid	3.94
Syed Ghulam Mustafa	3.68
Usman Iqbal	3.53
Mahruna Khattak	3.68
Schaheer Saleem	3.52
Attiqa Nazir	3.5

Congratulations!

MS (CS)	
Uzair Kamal	3.5
Bushra Tanveer Naqvi	3.5
Humaira Rehman	3.9
Talbia Jamil	3.94
Faiza Aslam	3.67
Muhammad Rehman Zafar	3.67
Rabia Chaudhry	3.67
Syed Tausif Ali Shah	3.58
Usman Ali	3.67
Hafiz Muhammad Umar	3.83
Iqra Rustam	3.5
Ramis Ali	3.83
Sarmad Shafiq	3.67
Imran	3.67
Samia Mushtaq	3.67
Muhammad Zeeshan Javed	3.5
Sabahat Ishfaq	3.5

BS (IT)	
Shafaq Munir	3.65
M Omar Farooq	3.63
Shahid Iqbal	3.7
Bilal Hameed	3.73
Choudhary Arslan Imtiaz	3.7

MS (TELECOM)	
Faisal Husnain Bokhari	3.72
Hamza Iqbal	3.81
Muhammad Sajeel	3.5
Muhammad Tauqir	3.5
Muhammad Waqas Qureshi	3.67
Amin Ullah	3.83
Badar Alam	3.83
Hashir Rehman	3.5

Ph D (CS)	
Momina Khan	3.75
Safia Shabbir	3.5
Ghulam Ali Mirza	3.58
Joddat Fatima	3.75
Zainab Yousaf Zaidi	3.75

You did it!
Congratulations

Event Bytes

Iftar Dinner

Spreading love, respect and happiness is the milestone which CS department has achieved once again successfully through organizing an Iftar Dinnerfor BUIC security staff on June 23, 2016.The objective of this Community Support Program (CSP) initiative was to acknowledge and appreciate the efforts of BU security staff and to cultivate an environment of brotherhood and respect with in the Campus. The event was organised by Mrs. Saima Jawad in collaboration with Mr. Shujaat and a group of ten volunteer students of BSCS 4th semester. The CS faculty members carried all the expenses of the event on their own behalf. Each and everything was well planned and done in the best possible way with love and respect. Some on duty personals, who were unable to join the gathering, were served in their office/place of duty. The organizing team delightfully served all the participants by their own hands. By this, sense of brotherhood and respect was enlightened. The staff members were thankful with bundle of good wishes for the organizing team. After the Iftar, Namaz e Maghrib was collectively offered in the university mosque. The importance of this CSP initiative is that students have learned responsibility, commitment, sharing and caring. Successful accomplishment of this event will help the volunteers to offer their best to serve the under privileged members of the community in future too.

Faculty Trip

Effective working relationships are critical for the professional success. In order to provide an entertaining and friendly environment, the Director General, Rear Admiral (R) Saleem Akhtar and Director Campus, BUIC Commodore (R) Syed Hasan Mustafa organized a trip to Khanpur Dam on 26th July 2016. This trip aimed to develop good working relationships among faculty members of BUIC. It was inter departmental trip that was well attended by faculty members of all departments along with the Director General and Director BUIC. Transport was arranged by university for the convenience of faculty member. On arrival at Khanpur Dam all participants enjoyed delicious refreshment and went for exciting and fun-filled activities (boating and jet skiing). They also participated in sports activities especially in badminton and cricket. It was a great event to have fun with colleagues and increase interaction between them. This entertaining event gave way to a very special and beautiful connection between all the departments that will help faculty member to learn and grow together.

Sports Festival

The CS Department of BUIC provides a vibrant environment for teaching and learning with a special focus on number of extracurricular activities both within and outside the campus. A Sports Festival was organized by students on 12th August, 2016 at OSCS Branch E-11 as part of their Community Support Program (CSP) initiative. OSCS which stands for Out of School Children's School is a charity funded educational initiative which aims to provide basic education to unprivileged children who otherwise can not afford enrollment even in public schools. The objective of this CSP initiative was to organize a sports festival with the theme of Independence Day for the children enrolled at OSCS. The event was overall supervised by Mrs. Saima Jawad in collaboration with Ms. Anum Kaleem and was planned and organized by a group of 4th semester BSCS students. The events included different fun filled activities like Sack Race, Spoon Race, Sprint, Tug of War, Football and Cricket. At the end, prizes were awarded to the winners of each event and gift bags were given out to every child. The event was a first of its kind for these children and the success of the event could easily be judged by the happiness on their faces. The OSCS staff and teachers were also happy to have this event organized for their students and were very much impressed with the enthusiasm of the volunteers. This event was an inspiration for the organizers as well and they all seem to be motivated to arrange more such events in future.
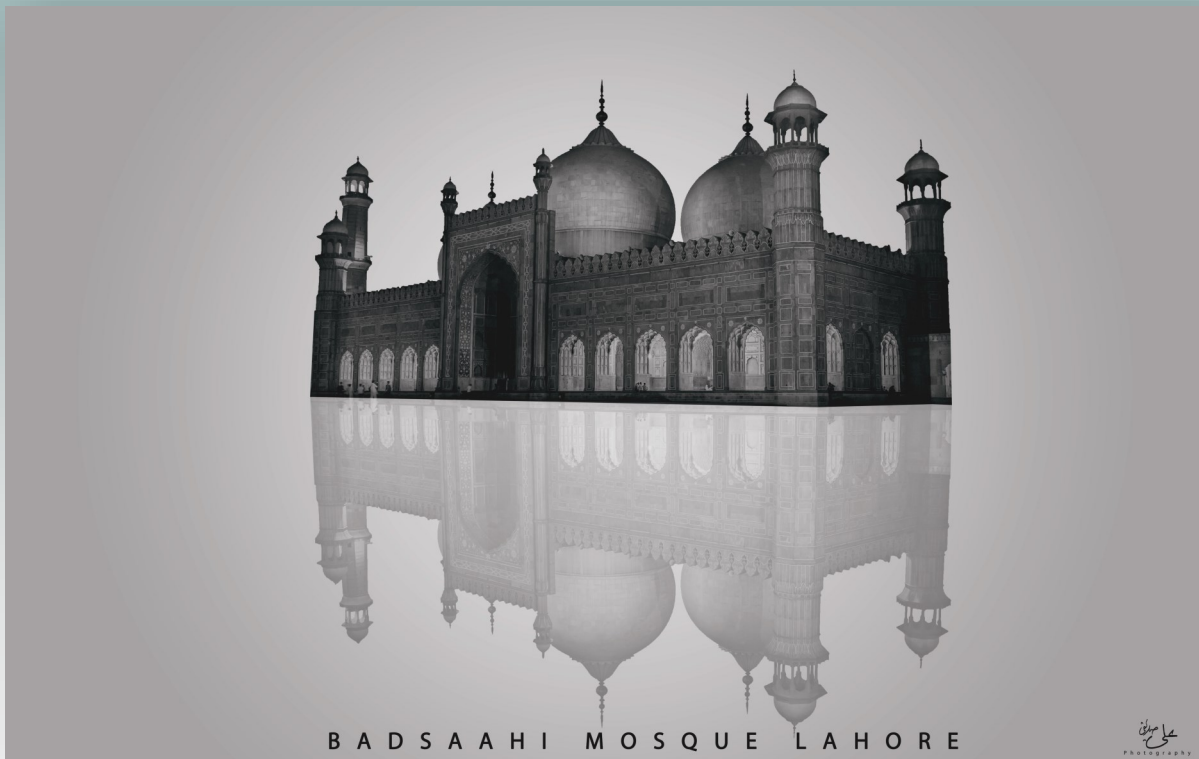
WELL DONE

Art Bits

Hum Laye hain Toofan se Kashti Nikaal ke
Is Mulk ko Rakhna Mere Bachon Sambhal ke

Sketch by Javeria Shaukat (BSCS-5B)

B A D S A A H I   M O S Q U E   L A H O R E

Digital Art by Muhammad Ali Siddiqi (BSCS-5A)

Photo Shoot

Together, We Can!!!

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