BLOCKCHAIN HACKATHON (BCH - 2018)

Organized by KICS, UET, G.T Road, Lahore, Pakistan Website: http://icosst.kics.edu.pk/2018/bch

AL-KHAWARIZMI INSTITUTE OF COMPUTER SCIENCE,

UET, G.T ROAD, LAHORE, PAKISTAN

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Registration Deadline: December 10, 2018 Final Submission Deadline: December 19, 2018 Evaluation and Presentation: December 20, 2018

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Blockchain

Discussions of blockchain are capturing the news, occupy boardroom discussions, and creating buzz in business, governments, and technology circles around the world. Blockchain technology has the potential to transform the way businesses operate and has potentially wide-ranging applications from banking to finance to healthcare to insurance. The KICS-UET Blockchain Hackathon provides an opportunity for student teams to compete for cash prizes as you explore the possibilities of a future on the blockchain.

The Government of Pakistan (GOP) strives to improve its citizens' quality of life and economic wellbeing by ensuring availability of accessible, affordable, reliable, universal and high-quality ICT services. GOP and Ministry of IT strongly believe in mass adoption of emerging digital technologies and relevant applications as enablers of cross-sector socio-economic development and transformation of economic activities, governance models and social interaction. This Hackathon is aligned with UNESCO SDG's and Ministry of IT (MoIT) Pakistan Digital Policy 2018.

Selected SDGs for participants to focus their projects and solutions on are:



- SDG-3: Good Health and Well Being
- SDG-4: Quality Education
- SDG-9: Industry, Innovation, and Infrastructure
- **SDG– 11:** Sustainable Cities and Communities
- **SDG– 16:** Peace, Justice and Strong Institutions

The SDG's Perspectives:

1- Blockchain: Opportunities for Health Care

A distributed blockchain that contains health records, documents or images would have data storage implications and data throughput limitations. Every member in the distributed network of the health care blockchain would have a copy of every health record for every individual in the Pakistan and this



would not be practical from a data storage perspective. Because health data is dynamic and expansive, replicating all heath records to every member in the network would be bandwidth intensive, wasteful on network resources and pose data throughput concerns. For health care to realize benefits from blockchain, the blockchain would need to function as an access-control manager for health records and data.

2- Blockchain: Digital Education Services

Blockchain technology is one of the most revolutionary concepts of our era, and it's transforming the manner in which personal and businesses interactions take place on a global scale. The technology provides a more secure and cost-effective alternative ways. These benefits are precisely why it shouldn't be a huge surprise to learn that blockchain higher education technology is now playing an ever-growing role in our educational systems. In seconds, blockchain technology accomplishes tasks that what once required significant staff such as monitoring, securing, and validating.

The cost associated with verifying student accreditations, and the time involved in the requesting process, limits employers from ascertaining potential new hires' educational merits. A blockchain-based system would allow students the ability to prove their academic skills when searching for employment directly, without delays, and at a much cheaper rate.

3- Blockchain as a Service (BAAS)

Blockchain has been one of the most awe-inspiring innovations since the Internet came into existence. Blockchain technology basically allows everyone to hold and make transactions as strangers but in a completely transparent manner. There is no mediator in between two people making the transaction, and the entire process becomes easier and cheaper. This concept can be applied to the entire digital world making any kind of exchange/transactions secure (and not just bitcoin).

It is this feature of Blockchain technology that has grown in its popularity amongst large banks, developers and entrepreneurs. Santander Bank, the world's 10th largest bank, has also been investigating blockchain technology. They have announced that an internal team is working on applying blockchain technology and distributed ledgers on various use cases in the bank. Other international banks like Citi, JPMorgan and Berkeley have also been showing interest in Blockchain technology. Many startups are building their businesses around blockchain technology.

4- Blockchain & Sustainability

Blockchain based applications provide many opportunities to help us create a more sustainable world: (1) more transparency about individual and collective action, as well as reliable provenance within global







supply chains (2) strengthen accountability loops and reduce bureaucracy and power asymmetries enabling new types of applications (3) incentivize environmental friendly behavior with purpose driven technology.

The lack of transparency along the global supply chains create challenges regarding fraud, pollution, human rights abuses and other inefficiencies. Sustainable behavior of individuals and companies is therefore currently hard to track and not well rewarded. In this context Blockchain has the potential to provide an unprecedented level of transparency, with a shared, decentralized database where immutable and encrypted copies of the information stored on every computer (node) in the network. This enables otherwise trust-less parties, such as individuals and firms that do not know each other, to engage in near frictionless peer-to-peer transactions. Blockchains can therefore serve as a transparent bookkeeping machine that everyone can inspect (public and permissionless blockchains) or a limited group of people can inspect (private and federated blockchains). This type of transparency has applications (1) along the supply chain of good and services, (2) in institutional settings, for less corruption and more accountability.





Blockchain is sometimes positioned as a disruptor to governments, or described in the context of enabling anonymous sales of illegal materials. However, smart regulators and government officials have realized that blockchain, just like all tools, properly governed in the interest of our society, holds the potential for great benefit.

Governments have already discovered several strong use cases for blockchains; property paper land titles are one example. When Haiti was hit by the 2010 earthquake, the municipal buildings containing paper records such as land titles were destroyed. This is a prime example of a vulnerable, single-point-of-failure system. Moving paper records to decentralized blockchains, and attaching ownership of assets to people's blockchain-based identities put governments in a far better position to preserve citizens' claims to assets, increasing confidence in those governments and economies. Many governments store all their data in centralized databases which leave them open to human errors, accidents, and tampering. If these agencies coordinate and create blockchain-based shared source of truth resources, that allows agencies to eliminate redundancies and spend taxpayer funds more efficiently. Those shared data pools allow governments to create higher-quality models enabling them to better serve public interests. If every decision an agency makes is tracked to individual employees' or groups' blockchain-based identities, it makes for easy audits and excellent tracking in case of an error to determine how a process went wrong.

Hackathon Assistance Resources

Blockchain Platforms

Here are some available blockchain platforms to choose from:

https://remix.readthedocs.io/en/latest/

https://ethereum.github.io/browser-solidity/

https://github.com/ethereum/remix-ide/releases

https://www.ethereum.org/

https://blockgeeks.com/guides/what-is-ethereum/

https://solidity.readthedocs.io/en/v0.5.0/introduction-to-smart-contracts.html

https://www.youtube.com/watch?v=3681ZYbDSSk

https://www.hyperledger.org/

https://www.hyperledger.org/community

https://azure.microsoft.com/en-us/solutions/blockchain/

https://www.ibm.com/blockchain/platform/

Assistance

This section identifies suggested resources for obtaining more information about the technologies you will use during the hackathon. Participants are ultimately responsible for their own research to determine what information they will need to create a successful solution.

SME Office Hours

Throughout the duration of contest, <u>subject matter experts</u> will hold office hours to provide guidance. These SME's have extensive experience as consultants and instructors, and are there to help answer your questions and provide insight.

Office Hours: Tuesday / Thursday (14:30 – 16:00)

Dates: 6th, 11th, 13th December 2018.

Please keep in mind that although our subject matter experts have extensive knowledge of development and technology, there may be questions that they are unable to answer directly.

In such cases, they will make their best effort to help you find another source of information.

Submission Instructions

The Team Lead is responsible for your final submission.

Your final submission will require following parts:

- 1. The description document as Word or PDF file, that you will provide prior to the scheduling of your demonstration.
- 2. The blockchain and any other development files.
- 3. Link to your video (not more than 7 minutes)
- 4. Names and email addresses of the team members with a corresponding author identified.
- 5. The live demonstration of your app.

Note: You **must** successfully complete above mentioned parts in order to qualify for judging and awards.

Description Document

For the preliminary round the student team must submit a report in a Word or PDF format that contains:

- 1. The name of your team and team members with email addresses.
- 2. The title of the use case you have selected.
- 3. A detailed description of your proposed solution which should include a written description of the solution, diagrams/charts/other visuals that communicate the solution and its components, the solution architecture and platform, etc.

The description document must clearly identify the following parts:

- Participants/Actors
- Preconditions
- On-chain Data Identification
- Transactions
- Rules
- 4. A statement of why you believe that your solution will work and how blockchain provides a new and potentially better approach.
- 5. A discussion of the major business aspects and benefits of your blockchain solution.

The team must also submit:

1. A copy of the in-progress source code for your "alpha" prototype (text file).

2. A link to a video presentation of your use case solution and demo of any prototyping of the solution that was completed (see video instructions below).

In addition to the report, the team must also submit a video that depicts a demo of the mock up or prototype of their solution to YouTube. The guidelines for this deliverable are:

- 1. The video must not be more than 7 minutes in length.
- 2. The team should briefly introduce the problem and an overview of the solution in the video, but the focus of the video should be the discussion of how the solution will work, its benefits, and a demo of the mock up or prototype.
- 3. All team members must be featured in the video.

Submission Deadline

The Deadline for submission is 19th December 16:00 hrs.

Demonstration

Your team lead/spokesperson(s) will deliver a live demonstration of the app during the time you are assigned. You will have 15 minutes to describe your app and demonstrate its functions. We do not require a specific format to your demonstration. However, our judges already would have gone through your videos before your live demonstration. So please ensure that you must have functional app to demonstrate.

Judging Criteria

A panel of judges will determine the winning teams. Judges will assign a score for each criterion based on how well the application fulfills the criterion. Judges will consider the demonstration and written submission in determining a score for each criterion.

Weight:

GUIDELINES	PERCENTAGE
 Problem Significance – * Completeness of Vision in accordance with the SGD applied. 	20
 Solution Description - * Does the team fully and clearly describe the proposed solution? Does the solution that they describe have the potential to solve the problem that they have presented using blockchain? Is Blockchain applied and/or implemented correctly? 	25
 Innovativeness of Solution – Is the solution innovative and disruptive? How is it different than what has already been done? Wow Effect – Can you amaze your judges? 	15

 Business Aspect of Solution – Does the team clearly convey the benefits of a blockchain solution in the given context? Does the team clearly articulate the business benefits of the solution? 	20
 Blockchain Demo -* Does the team's solution reflect what was in the report? Is it something that can be developed into a feasible technology given enough time? How is the quality of the explanation/demo video? 	20
TOTAL	100

*Note:Detailed evaluation will be done for professional teams

Official Rules and Conditions

<u>AGREEMENT TO OFFICIAL RULES AND CONDITIONS.</u> Participant in the Blockchain Hackathon contest constitutes entrant's full and unconditional agreement to and acceptance of these Official Rules and Condition.

<u>ELIGIBILITY</u>. The contest is open to all current legal adults Nationals of Pakistan. Once selected as a potential winner, contestants ARE NOT ELIGIBLE to be selected to receive more than one prize. JUDGES ARE NOT ELIGIBLE TO PARTICIPATE.

<u>TO ENTER.</u> **NO PURCHASE NECESSARY.** No purchase or payment of any money is necessary to enter. Multiple entries from the same person will be disqualified. KICS-UET is not responsible for late, incomplete, invalid, or ineligible entries, which will be disqualified. KICS-UET is not responsible for technical failures of any kind, including but not limited to electronic malfunctioning of any network, hardware, or software or electronic or human error which may occur in the processing of entries. KICS-UET reserves the right in its sole discretion to disqualify any individual it finds to be tampering with the entry process or with the operation of contest, or to be acting in violation of these Official Rules and Conditions. KICS-UET reserves the right to cancel, terminate or modify the contest if it is not capable to completion as planned for any reason.

<u>FEE.</u> The registration fee to participate in BCT – Hackathon is 2000 PKR. Fee receipt scanned copy need to be upload at the time of Registration.

<u>SELECTION.</u> Winner will be selected by a panel of judges. Judges will select the winners on Dec 20th 2018. if a potential winner cannot be contacted after the first attempt to contact such potential winner, an alternate entrant may be selected in his/her place from all eligible entries based on scores assigned by the judges.

<u>REUSE OF THIRD-PARTY CODE.</u> All application code must be original or legally sourced.

<u>COLLUSION</u>. Teams may not share application code. Teams may, and are encouraged to share ideas and advice. However, actual source code should not be shared amongst teams.

<u>PRIZE.</u> Prizes are awarded only to registered members of the team.

<u>SPONSOR.</u> This contest is sponsored by KICS, UET G.T. Road, Lahore.