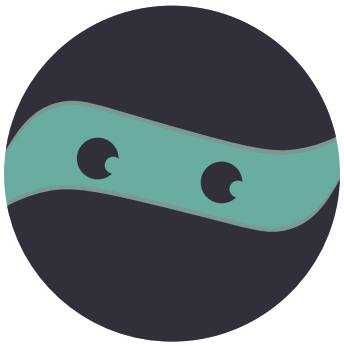
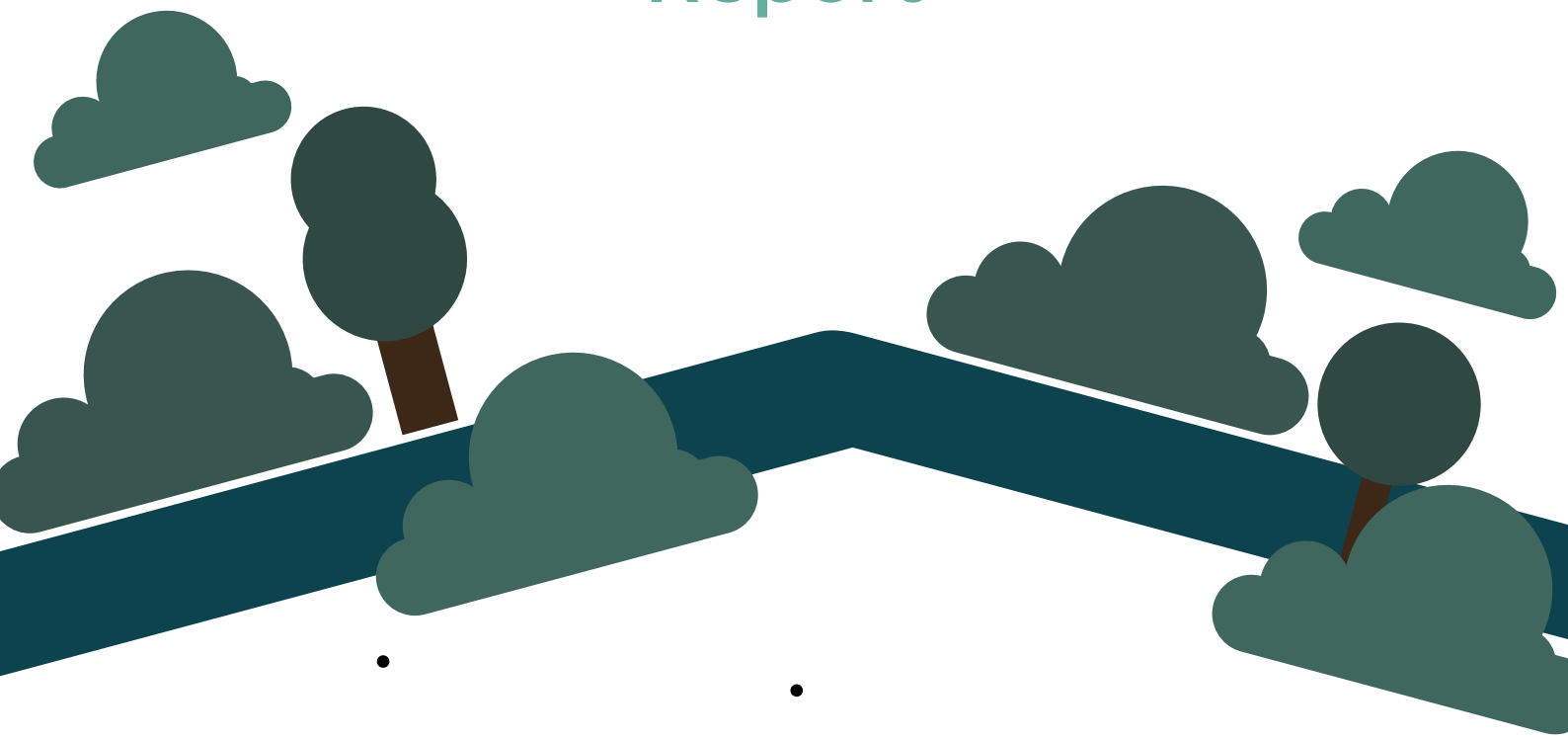


KU HackFest 2021

Report



www.kuhackfest.com

Introduction

"Hackathon", even though it is merely a combination of the words "hack" and "marathon", is better characterized as an 'innovation marathon' where anyone with an interest in technology participates in a comfortable and accommodating environment to learn, create & share their creations over a weekend.

In the midst of COVID 19 challenges, Kathmandu University Computer Club (KUCC) organized **KU HackFest 2021** with a mission to promote hackathon culture and find young tech talents around the globe. The hackathon took place from Friday Feb 19, 2021 to Sunday Feb 21, 2021. This was also **Nepal's First Digital Major League Hacking (MLH) Hackathon** with the grandest of prizes in Nepalese Hackathon History worth over $50,000.

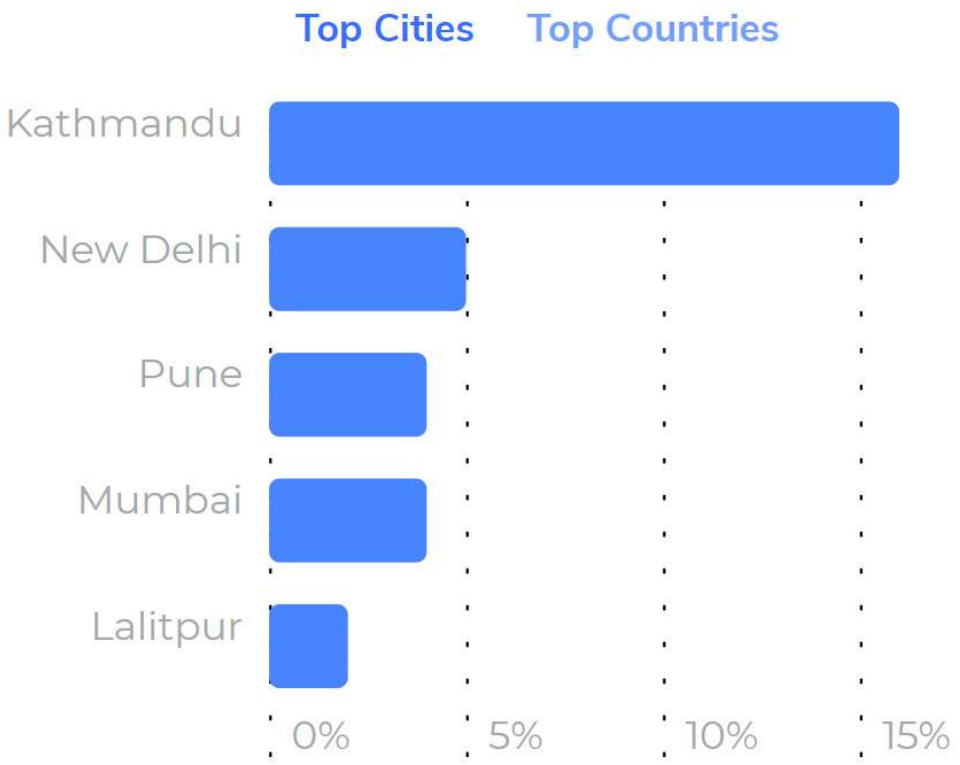
Although the persona of Hackathons/HackFests has typically been painted as all-night competition fueled by pure caffeine and code, they involve much more than that. KU HackFest had a total of **88 Teams** and **613 participants** selected among the pool of 1646 applicants from diverse backgrounds, regions, age-groups, education level and skill sets. Our participants a.k.a hackers worked collaboratively in a team to come up with innovative and novel solutions. KU HackFest was not only the platform to compete for prizes but proved to be an opportunity for young coders to meet new people, learn and work together.

Figure: Objectives of KU HackFest 2021

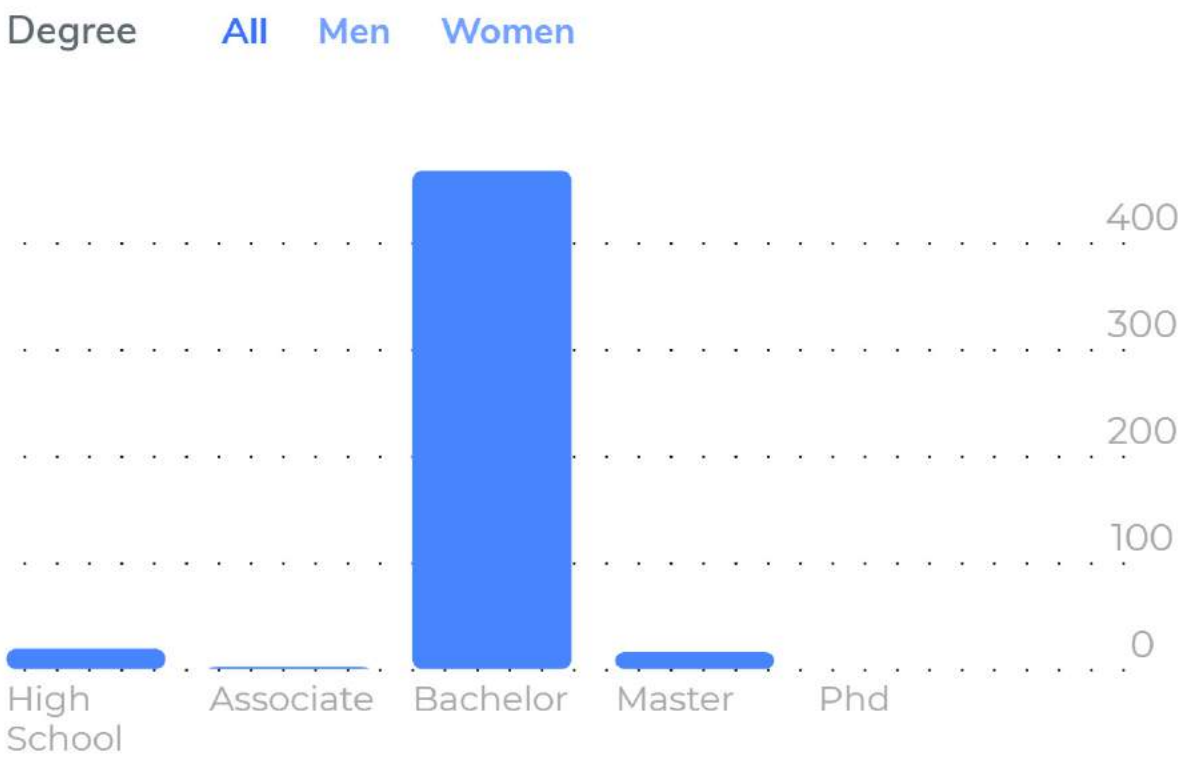
Demographic Data

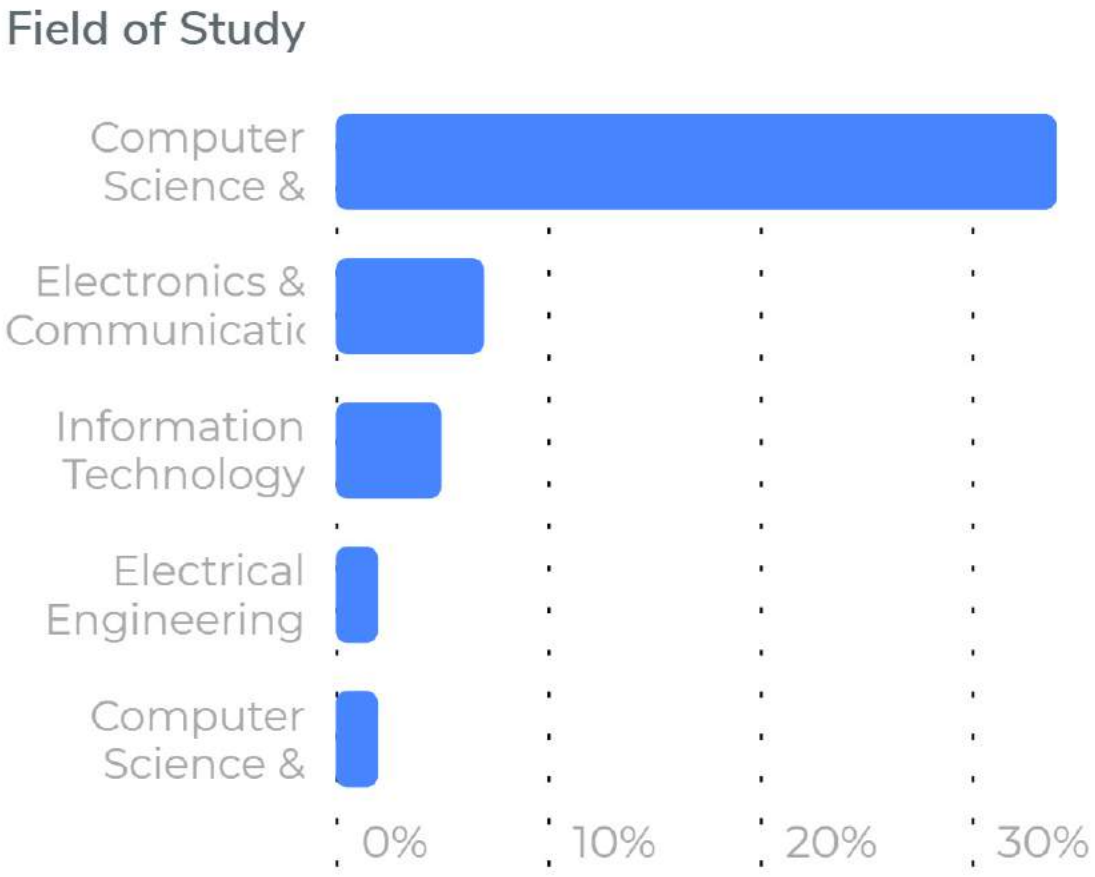
- **Total Applicants:** 1646
- **Selected Participants:** 613
- **Male:** 83.76%, **Female:** 15.49%, **Did not say:** 0.75%
- **Countries (29):**

India	Nepal	Australia	US	UK
Algeria	Nigeria	Canada	Bahrain	Bangladesh
Turkey	Tunisia	Pakistan	Netherlands	HongKong
UAE	Indonesia	Sri Lanka	Malaysia	Kenya
Rwanda	Austria	Germany	Kyrgyzstan	Mexico
Russia	Singapore	Kazakhstan	Italy	

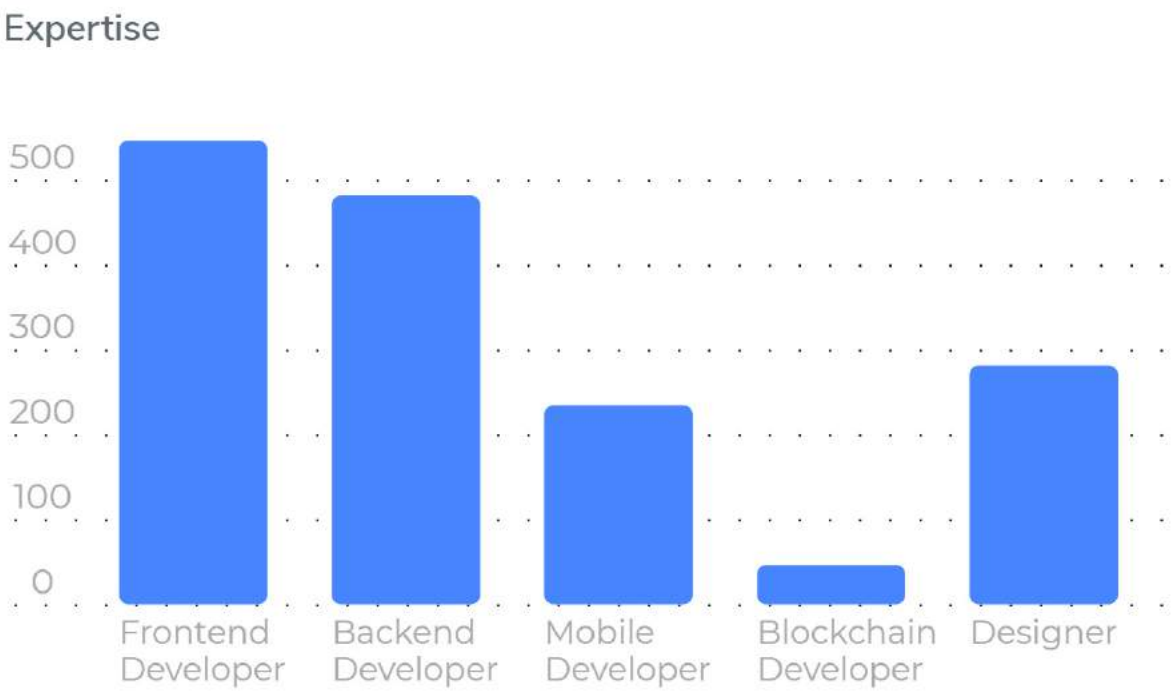


Education:

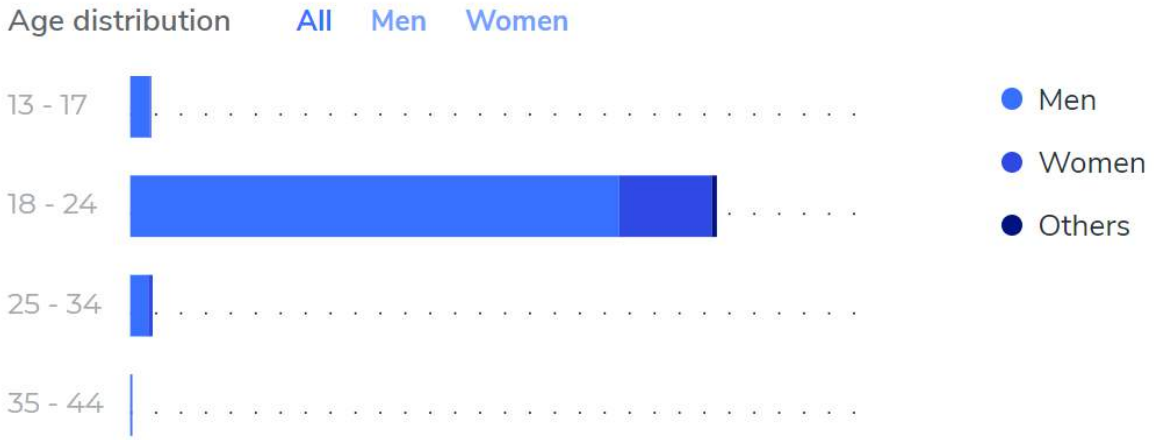

Degree
All
Men
Women
400
300
200
100
0
High School
Associate
Bachelor
Master
Phd


Field of Study
Computer Science &
Electronics & Communicatic
Information Technology
Electrical Engineering
Computer Science &
0%
10%
20%
30%

Profession:



Age-group:



Event Tracks

To acknowledge the diversity in audience and skillset, we conducted KU HackFest 2021 on an **open-theme basis** and there were no explicit problems statements as recommended by the MLH team. This indeed turned out to be very fruitful as the participants were not restricted to a specific domain, programming language, framework or work-procedure. However, we announced six tracks for the hackathon based on the recent development trend in the tech industry. Out of these **six tracks**, our participants had to choose at least one track and build their project accordingly to be eligible for the main hackathon prizes. The tracks were as follows:

1. **Data Science and AI**
2. **IoT (Internet of Things)**
3. **Cloud**
4. **Blockchain**
5. **AR and VR**
6. **Open Innovation**

On top of these, there were several other sponsored challenges that our participants could opt for to win additional prizes. The full list of our challenges and prizes can be found here.

Event Timeline

Pre-Events:

In order to prepare our participants with different skill sets, we organized a series of sessions and workshops via Zoom from **Feb 13, 2021** to **Feb 18, 2021**. These sessions/workshops were conducted with coordination from our community partners, sponsors and tech experts. All of these sessions were also live-streamed on our Facebook and YouTube page to maximize public participation, reach and to provide recordings. Below is a list of all our 11 pre-events for KU HackFest 2021.

SN	Name	Date	Organization/Community
1	Impactful Problem Solving	2/13/2021	WLiT
2	Quantum Computing	2/13/2021	TechWebinar Nepal
3	Code Collaboration with GitHub	2/15/2021	KU HackFest
4	Numpy and Pandas: Your footstep into ML	2/15/2021	KU HackFest
5	App Deployment and security with Digital Ocean	2/16/2021	KU HackFest
6	Blockchain Casino - Learning how to SCORE on ICON	2/16/2021	iBriz.ai
7	Working with Open Data	2/17/2021	Open Knowledge Nepal
8	Apply design thinking to build a user-friendly product	2/18/2021	Leapfrog
9	Getting Started with Tezos	2/18/2021	Devfolio (Tezos)
10	Team Formation Session	2/18/2021	KU HackFest
11	Building an expense tracking app without writing code	2/18/2021	Silly Hacks

Figure: Pre-events with their corresponding dates and organizers

Main Event:

Check in for the participants started at **11:00 AM NPT (GMT +05:45) on Feb 19th 2021** and lasted till **1:00 PM NPT**. Right after the check-in, the Opening Ceremony started in which our guest speakers from MLH, diamond sponsors and KU Officials gave short speeches and wishes to our participants. All of our hackathon prizes and all the major details were also described by our lead organizer during the opening ceremony. Hacking time started at **2:30 PM NPT** and they were given 48hrs to create a Minimum Viable Product. Throughout the event (Feb 19-21) we had various fun events, workshops and sponsored sessions. The full schedule of the main event can be found on here. Announcements were made on our Discord Server to make everyone aware about the different activities throughout the hackathon. Mentor Support was also made available on our Discord Server to help participants with any problems or provied guidance when required.

On Sunday morning **Feb 21, 2021,** the hacking time ended at **8 AM NPT**. The organizers did an initial screening from **8:00-8:30 AM NPT** to filter any spam projects and the 58 projects were passed on to our judges for final scoring. Our judges scored the projects till **12:00 PM NPT** and the scoring was carried out for another hour by our tech team. The closing ceremony started at **1:30 PM NPT** where all our winners were disclosed and congratulated. We also had the presence of our sponsor representatives, judges and MLH team during the closing ceremony. Finally, the end of the hackathon was announced at **2:15 PM** on **Feb 21, 2021**.

Winners

We received a total of 58 submissions at the end of the hackathon period on 21st Feb 2021. Projects ranged from an app to identify disease (an application to detect pneumonia and brain tumor through X-ray with the help of AI), to an AR enabled payment app backed by facial recognition and Ethereum Blockchain, to visualization based active learning achieved with AR technology. After a thorough review from our judges, we had our hackathon winners with us. It was great to see such diverse and awesome projects with innovative ideas and solutions.

Main Winners of the hackathon were:

Overall winner:

SUSHIKSHYA - Visualization based active learning achieved with AR technology.

Project Link

https://devfolio.co/submissions/sushikshya-f18b

First runner up:

IOTA - An online assistant to make teaching more effective!.

Project Link
https://devfolio.co/submissions/iota-74f4

Second runner up:

"SMART" SMALL PARTS ORGANIZER - A small parts organizer with 7 ARGB LEDs per tray, a 4.3" TFT display, and web connectivity.

Project Link
https://devfolio.co/submissions/smart-small-parts-organizer-2983

Winners of Tracks were:

IOT: DECENTRALIZED POWER DISTRIBUTION SYSTEM - IDEA'S MY APPETITE.

Project Link
https://devfolio.co/submissions/decentralized-power-distribution-system-a8e6

Cloud:

EILLE FOR INDOOR NAVIGATION & ANTI-DEPRESSION - HOLOGRAM

Project Link
https://devfolio.co/submissions/eille-for-indoor-navigation-and-antidepression-ce4a

Blockchain:

HASHPAY.AR - HASHMINE

Project Link

https://devfolio.co/submissions/hashpayar-67b4

AR and VR:

SUSHIKSHYA - NIGHTOWLS

Project Link

https://devfolio.co/submissions/sushikshya-f18b

Open Innovation:

IOTA - GOGITTERS

Project Link

https://devfolio.co/submissions/iota-74f4

Others Category Winners:

Best Idea:

LOCKED OUT - WOLVERINES

Project Link

https://devfolio.co/submissions/lockedout-a31f

Best Prototype:

EILLE FOR INDOOR NAVIGATION & ANTI-DEPRESSION - HOLOGRAM

Project Link

https://devfolio.co/submissions/eille-for-indoor-navigation-and-antidepression-ce4a

Best Market Ready Solution:

GREENHOUSE CLIMATE CONTROLLER SYSTEM - BINARYCODERS

Project Link

https://devfolio.co/submissions/greenhouse-climate-controller-system-e111

Best use of GitHub Developer Pack:

TAGONIZER - MAJESTIC CODERS

Project Link

https://devfolio.co/submissions/tagonizer-a34c

MLH Prizes Winner:

Best Hardware Hack:

DECENTRALIZED POWER DISTRIBUTION SYSTEM - IDEA'S MY APPETITE

Project Link

https://devfolio.co/submissions/decentralized-power-distribution-system-a8e6

Best Beginner:

LOCKED-OUT - WOLVERINES

Project Link

https://devfolio.co/submissions/lockedout-a31f

Best Domain Name:

VIRTUAL RADIOLOGIST - VIRTUAL RADIOLOGIST

Project Link

https://devfolio.co/submissions/virtual-radiologist-637b

Infrastructures and Cost

Being a 48 hour event, there were several specific needs. Even though the event was fully virtual for the participants, all the organizers came together at Kathmandu University premises and we hosted the entire event from our main campus at Dhulikhel. Care was taken to anticipate heavy internet usage, especially for the live streaming purposes. We also ensured that we did not have downtime or maintenance scheduled during the hackathon period. For all our pre-events, we used the Masters Room of DoCSE (Department of Computer Science and Engineering) to set up a workspace and streaming studio. For the main event (Feb 19-21), we used the Mini Auditorium Hall at Kathmandu University with Audio-Visual Setup, DSLR Cameras, Routers, and microphone. Thanks to our department breakfast, lunch and dinner was arranged for all the organizers during the entire hackathon period. 10 of our organizers stayed all night on 19th and 20th at KU itself for monitoring the hackathon and helping participants solve queries. We did have a lot of fun and created long lasting memories as well.

A large portion of the budget was used to provide cash prizes to our well deserving winners. The total cash prize was NRs. 1,22,220. Budget was also utilized for digital goods including social media boost, Discord server boost. Other costs were used for the flexes, stands, tokens of love, sleeping bags, hoodies (for organizers) and swags shipping charge to the winners.

Sponsors

Our event would not be possible without the generous support from our sponsors. We had a diverse pool of sponsors from monetary to in-kind and other partners. We express our special gratitude to all our sponsors for making this event successful.

Diamond Sponsors:

connectIPS, leapfrog, Distributed Compute Labs

Gold Sponsors:

Angelswing, Devfolio

Silver Sponsor:

GitHub

Bronze Sponsors:

Matic, Portis, Tezos, Tech Himalaya, usome

General Sponsors:

1Password, awsEducate, axure, balsamiq, Clerky,The Codex, DigitalOcean, egghead.io, GitKraken, kuzo, repl.it, sashido, stickermule, taskade, testmail.app, voiceflow, Wolfram Language

Community Partners:

Code for Nepal, Facebook Dev C, GDG Dang, GDG Kathmandu, Girls in Tech Nepal, GirlScript Nepal, Nepali Women in Computing (NWiC), Open Knowledge Nepal, Women Leaders in Technology (WLiT).

Media Partners:

ICT Byte, ICT Frame, TechPatro, TechSathi

Outreach Partners:

Blincventures, EventsNP, F1Soft International, NSTQB, Tech TOgether Seattle, Silly Hacks, TechWebinar Nepal.

Social Media Coverage

We leveraged different social media platforms for event announcements, publicity, promotion and sourcing insights. For every new relevant info regarding the hackathon, posts were made on our social media handles (**Facebook, Twitter, Instagram and LinkedIn**) from our official KU Hackfest 2021 accounts. This helped participants from all over the world to keep getting updates regarding all the events and pre-events.

Discord was our primary mode of communication for the organizers as well as participants during the hackathon. Specific roles were assigned to everyone in the server such as hacker(participant), organizer, judges, mentors and volunteers. There were many text and voice channels for tailored experience and a welcoming atmosphere was created for everyone on the server. The participants were encouraged to directly connect with the organizers if they ran into any problems or had any questions.

All the pre-events were on Zoom for anyone wanting to participate. For those who couldn't join the Zoom sessions, these events were also live-streamed on Facebook and Youtube so that the participants from all over the world could tune in later and grab the content as per their availability.The participants showed great interest and enthusiasm in the social handles.

Join and view all our official social media handles:

Discord: https://discord.gg/Hsp6bvvSqz

Facebook: https://www.facebook.com/kuhackfest

Instagram: https://www.instagram.com/kuhackfest/

Twitter: https://twitter.com/kuhackfest

LinkedIn: https://www.linkedin.com/company/69683009/

Youtube Link: https://www.youtube.com/channel/UCK0mJYIAQkMaJdT0LfQnybg

Acknowledgements / Personnel

This 48 hour long hackathon weekend required significant personnel. We would like to thank everyone who was involved in KU HackFest 2021 and making it a grand success.

Speakers:

Nikesh Balami, Thomas Chen, Samaya Khadka, Astha Sharma, Melisha Ghimire, Srinjoy Ganguly, Rachita Maharjan, Shreya Basnet, Harshil Agrawal, Mudit Marda, Sabu Koirala

Organizers:

Sagar Uprety, Aashish Dhakal, Aashish KC, Amisha Dahal, Prabhat Neupane, Rashika Karki, Sarayu Gautam, Yogesh Pant, Ashutosh B. Rajan, Swornim Nakarmi, Shreya Shrestha, Aadarsha Dhakal, Ashish Thapa, Aayush Pokharel, Shubhechchhak Pokhrel, Dipesh Shrestha, Sailesh Dahal, Ishan Karki, Kushal Manandhar, Manish Bhatta

MLH Representatives:

Yashovardhan Agrawal, Aditya Oberai, Sajal Bansal

Mentors:

Mallika Sinha, Nishla Shakya, Sergey Denisov, Jagatjyoti G. Tuladhar, George Andronchik, Anjali Acharya

Judges:

Sushant Bhadkamkar(Software Engineer at Lyft), Subash Sharma(CEO of F1Soft International), Surhid Amatya(Senior Software Engineer at LeapFrog), Daniel Desjardins(Executive director Distributed at Compute Labs), Dilliman Singh Shakya(Chief Technology Officer (CTO) at Nepal Clearing House Ltd.), Bal Krishna Bal(Head of department of DoCSE at Kathmandu University), Juan Pablo Flores(Program Manager at GitHub), Mikle Alpha(Lead Software Engineer at Russian Agricultural Bank).

KU Officials:

We would especially like to extend our warmest gratitude to the Department of Computer Science and Engineering, Kathmandu University, Dhulikhel, Nepal.

Next steps

Following the hackathon event, arrangements were made to hand over the respective prizes to the winning teams. After the event, we contacted every winning team member with instructions to redeem all of their prizes. In the near future, we will be posting all the event recordings (edited) including pre-events sessions and main event sessions on our official YouTube Channel. Digital Certificates and tokens will also be distributed to all our participants, winners, judges, mentors and speakers. For the prizes that require delivery of swags, we will be shipping them to the winner doorstep. Also, by utilizing our resources and sharing the experience from KU HackFest 2021, we plan to support the local tech communities to organize tech events, webinars, workshops and awareness campaigns and finally prepare for the upcoming editions of KU HackFest 2021 with bigger plans and ambitions.

Judging Criteria

Each submission had a project description, tech-stack information, GitHub source code and a demo video showcasing their overall idea and the execution. The projects were then judged and scored by eight of our national and international Judges including GitHub Education Manager, Product Engineer at Lyft, Sponsor's Representative and Industry Representatives. The full list of our judges can be found here. Each project were judged on the following criterias:

Originality:

- Originality represents the uniqueness of the project and project idea.
- Is the project innovative enough that the source code can't be easily obtained from a google search of a similar project.

Technology:

- How technologically advanced is the project?
- How remarkable was it that this project was completed to the point of functioning in a matter of 48 hours?

Design and Prototype:

- Is the application visually appealing and has an easy-to-use interface?
- How much has the team carefully considered their project idea to extend it in the future?
- How scalable is the project made?

Business Value:

- How easy is the idea to be uplifted from the prototype model to a business-ready model?
- How much value in income and reach can be expected from the project?
- Is the project sustainable?

Relevance to Track:

- Does the project align with one of the tracks presented in the
- How accurate is the track of the project?
- How remarkable is the project from the viewpoint within the track?

Photo gallery

Getting ready for opening ceremony of KU HackFest 2021

Opening Ceremony Live streaming from KU Mini Auditorium

Respected Dean of School of Engineering (Dr Dambar Bahadur Nepali) and Head of Department of DoCSE (Dr. Bal Krishna Bal)

Technical Volunteers monitoring during the event

Organizers working at night during the event

MLH Representative during closing ceremony

KU HackFest 2021 Team

KU HackFest 2021 Report Prepared By:

Sagar Uprety (Lead Organizer), Ashutosh B. Rajan (Design), Swornim Nakarmi (Design), Shubhechchhak Pokharel (Documentation) & Shreya Shrestha (Documentation).

Contact number: +977-9861656522

Official email: contact@kuhackfest.com.