



# Smart EduHackathon

## Problem Set

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**U.S. Embassy, Cairo**

**ACPC** Africa and Arab Collegiate Programming Championship

**AAST** Arab Academy for Science, Technology and Maritime Transport



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### INTRODUCTION

Due to the outbreak of the Coronavirus in 2020, education systems worldwide have witnessed the largest disruption so far. According to the United Nations, the number of affected learners is estimated to be 1.6 billion, across 200 countries and all continents. Closure of schools has affected almost 94% of the world's school population, and in low to lower-middle income countries, this percentage reaches 99.

Education system partners -including both: professors and students- are now trying to adapt and recover. A lot of distance learning solutions have been suggested and implemented in some schools. Some of these solutions proved to be great and made its way across other schools/countries and others were buried as soon as they were proved to be useless.

The problem with messing the education system up, is not just that it is a fundamental human right. The real problem is because it is more of an enabling right, that directly impacts and leads to the realization of all the other human rights we know of. You cannot expect societies to remain at peace, prosperous and productive when their education systems collapse. Rather, you expect them to be rural, violent, and vulgar.

Thus, sustaining the education systems has been a national and international aim, and the responses to the shock to the education system started to take place. The solutions which were once considered impossible or identified as not applicable, are now taken into consideration again, and are being implemented on the various educational entities. Those entities include pre-primary to secondary schools, technical and vocational trainings, institutions, universities, ...etc.



### **PROBLEM STATEMENT I: PROFESSORS**

#### **The Challenge**

The challenge is to propose and develop a software solution to help professors navigate chaos in the online learning systems that have evolved due to COVID. You are courteously asked to make professors' lives easier during these hard times, while adhering to the social distancing measures and abiding by national laws.

Teams can address questions such as:

- How can you help professors adapt to technology?
- How can you ensure there is no wasted time in online lectures?
- How can you help professors detect the student's status (sleeping, having lunch, ...etc)?
- How can you make assessment and lab work efficiently doable online?
- ...etc

#### **The Problem**

As a key partner in the education system, professors play an important role in the passing what they know to the generations of the future. However, most of the public debate does focus on the students and ignores the problems and challenges faced daily by professors. The difficulties professors face on the ground, are usually not given enough attention, claiming that students are the only affected partners.

With some countries and schools re-opening after the pandemic, some students are back to offline classes. However, this does not mean things got back to normal. Professors and students must adhere to the social distancing measures specified by health experts. Those measures include wearing masks, which limits the interaction between the instructor and recipient.

#### Technology

The change of technology has forced professors not only to learn technology, but to use it in their online classes. While some professors were used to that before the pandemic, everyone was forced to get used to it after. We have heard about a lot of incidents where the professor could not access the class, so he missed it, or having problems with sharing live content to the attendees. The annotations provided by a software like Zoom or MS Teams are not sufficient, and a lot of professors spend the entire class trying to draw something for their students.



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The migration from the physical classroom to the virtual one was not -and remains- not easy at all. Some professors gave up and decided to hand in to their Teaching Assistants, who are usually younger and more technologically equipped.

### Engagement

As Benjamin Franklin once said: “Tell me and I forget. Teach me and I remember. Involve me and I learn.”. The task of involving and engaging students and learners in the concepts being explained, is quite a tough one, especially when they only appear as black tiles in the online meeting. The feeling of a physical classroom where you can see, ask and talk to everybody, allowed a more engaging experience for the professor, and allowed him to quickly spot if any of the students is not getting the topic.

Eye contact and reactions like nodding usually tell the instructor how he is doing, and whether he should stop and recap. However, with the online system, it is almost impossible to notice all of that, and a lot of instructors end up explaining something very hard in just a few minutes. Why? Because the instructor did not have any indirect feedback on whether he should proceed or not.

### Material

Since the suspension of most offline lectures, tutorials and labs, professors have been struggling with migrating to online platforms, while keeping their course material and outcomes. The COVID professors are suffering, trying to move all the lab work, assignments, quizzes and midterm/final exams to online platforms. Google Forms, for example, provided a very easy yet basic solution for quizzes. Lab work, specifically, creates a big problem, as some people are now doubting the skills of COVID graduates, claiming they were not trained “properly”.

### **Resources**

- How Educators Are Adapting to Challenges During COVID-19
  - <https://www.westat.com/articles/how-educators-are-adapting-challenges-during-covid-19>
- Education: From disruption to recovery
  - <https://en.unesco.org/covid19/educationresponse>
- Brief: Education during COVID-19 and beyond
  - [https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/08/sg\\_policy\\_brief\\_covid-19\\_and\\_education\\_august\\_2020.pdf](https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/08/sg_policy_brief_covid-19_and_education_august_2020.pdf)



### PROBLEM STATEMENT II: LEARNERS

#### The Challenge

The challenge is to propose and develop a software solution that solves one or more of the problems and challenges facing learners, specifically those attending universities during this pandemic.

Teams can address questions such as:

- How can you compensate the messed up social life of students?
- What can help students increase their attention span and boost their productivity at home?
- How can you make sure students pay attention at online lectures?
- ...etc

#### The Problem

When the lockdown was first announced, students were so happy about not going to school, that they never thought they would regret it later. The COVID situation did not just replace physical attendance with online one, it has impacted the whole life of students, from waking up till going to bed.

##### Social Life

As a person whose life is currently concentrated around university, the top -sometimes only- perk of going there is getting to see your friends every single day. It helps forget about the stress and pressure from other assignments and due projects. Breaks and student life hours also help you socialize with students and professors outside your classroom.

Now, imagine you still must attend school, but with no one around. Not only you will feel stressed and anxious all the time, but you might also feel lonely and suffer from depression. Now, imagine if that continues for a couple of years. You will end up isolated from everyone around, having an inexistant social life.

##### Distraction

How many times have you texted your friend, and he/she replies within seconds, even though they are in the same online lecture with you? When in the physical classroom, everyone pays attention to the instructor, and if you do not, you will be hiding your phone to not be caught. Your phone, as well as your friend's, is usually on silent mode and no side-talking or chitchatting is allowed. That makes the environment suitable for you to focus and learn.



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However, sitting at your desk -sometimes bed- where no-one is watching over you, lots of snacks are there and your social networks notifications arriving every couple of minutes, will distract you and destroy your focus and productivity. The illusion of “This lecture is recorded, I can watch it later”, leads to you attending the main lecture but not paying attention because it is recorded anyway, and not watching the recording because you have already attended the lecture! Result? Wasted time and zero benefit.

### Resources

- How is COVID-19 affecting student learning?
    - <https://www.brookings.edu/blog/brown-center-chalkboard/2020/12/03/how-is-covid-19-affecting-student-learning/>
  - Challenges of home learning during a pandemic through the eyes of a student
    - <https://www.thejakartapost.com/life/2020/04/11/challenges-of-home-learning-during-a-pandemic-through-the-eyes-of-a-student.html>
  - COVID-19 challenges for student affairs and services globally
    - <https://www.universityworldnews.com/post.php?story=2020091110565397>
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