

TECHFEST 2021-22

MULTI FACTOR AUTHENTICATION

PROBLEM STATEMENT

Techier is a large wealth management organization with multiple web portals for its clients. This organization uses OKTA to verify users for authentication. Since the organization is distributed across geographies and the portals are made with different technologies there is no uniformity in adopting OKTA. This creates a security risk and a huge task to update all applications for any consistency. The CTO needs your help to design a **microservice** that would talk to OKTA and return a valid session to the calling application. An industry parallel is when you can use social login to register on some other website.

Specifications for you to architect the solution:

Authentication – Users can be verified by OKTA, local DB, or both as per the requirement of the calling application

API – Create a secure API channel between the caller and **microservice** to enable user authentication operations

Response – Create a response based on the authentication result and pass it back to the application in terms of the session, cookies, etc. using the secure API above

Microservice requirements:

- Design a 2 way communication microservice in the code of your choice
- The microservice will act as an intermediate layer between the business sites and OKTA.
- Website passes user info -> Microservice -> passes info to OKTA for authentication. OKTA passes authentication result -> Microservice -> passes info back to the website requesting authentication
- In Scope to design a simple login page mimicking a business website, microservice (use APIs to communicate with the business websites) to communicate with the business website and OKTA

GENERAL RULES

- Every team has to **register online** on the Techfest website for the competition. A **Team ID** will be allocated to team on registration which shall be used for future references.
- A team can register at any point of time before **17th October 2021** and submit the final abstract and video (as mentioned in the [structure](#)).
- The decision of the organizers and/or judges shall be treated as final and binding on all. Techfest has all the rights to verify the identity and accuracy of the details provided by the participants.
- Techfest, IIT Bombay will hold no responsibility for any late, lost, or misdirected entries.

- The idea presented by the teams should be original (not protected by patent/copyright/technical publication by anyone else).
- Note that at any point in time the latest information will be that which is on the website.
- All modes of official communication will be through the **Techfest e-mail**.

STRUCTURE

ROUND 1: ABSTRACT SUBMISSION

In this round, teams will have to submit a brief Abstract about their tool. It must contain the following:

- **Statement of Problem**- Succinct definition of the problem addressed.
- **Objectives**- What is your motivation? What are the objectives the prototype is developed for?
- **Introduction to Proposed Solution**- A basic idea of the solution to attempt to propose. Also, explain the thinking behind the proposed solution.
- **Novelty of Approach (optional)**- Is there something unique to your solution (that gives your tool an edge over the other solutions)?

You must be very concise and to the point in the Abstract. It must not exceed two pages.

The Abstract (as a pdf) must be sent by email to mfa@techfest.org with the team details clearly mentioned in the email. The Team ID should be explicitly mentioned in the email subject and the abstract file must be in the form of '**TeamID_TeamLeaderName**'. Any other name for the abstract file will not be accepted.

The last date for Abstract Submission is 24th October.

ROUND 2: DESIGN DOCUMENT SUBMISSION

Following is the list of contents that must be included in the Design document:

- **Introduction**
- **Understanding of Problem Statement**
- **Scope/Assumption**
- **Tools & Technology Stack**
- **Architecture Diagram (if any)**
- **Design (Implementation) Details**

A session will be conducted with the Subject Matter Experts to explain the further steps in designing the solution. Following this, the teams will be given two weeks to construct the design document of their solution.

Based on these submissions, the top 20 teams will be selected to implement their design.

ROUND 3: FINAL SUBMISSIONS AND PRESENTATIONS

This round will be held in two stages. First, the selected teams will have to submit the final implementation of their tool. Based on this, the top-scoring 5 teams will be asked to present the working of their solution to the Judges' Panel, based on which the final winners will be announced.

TIMELINE

Last date of registration	24 October
Abstract submission deadline	24 October
Sessions with MMC Expert	25-26 October
Design Document Submission	7 November
Top 20 teams selection	12 November
Demo Prep and Round 3 Submissions	12 November-3 December
Top 5 teams selection	6 December
Finale Presentation to the Judges Panel	15 December

JUDGING CRITERIA

Participants must keep in mind the following points that would be used in judging the competition:

- **Completeness which includes-**
 1. Classification
 2. Re-trainability
 3. Ease of tuning the model
 4. Deployment readiness
- **Solution design and Quality**
- **UI/UX**
- **Technology Usage**
- **Ease of maintenance**

Youtube OCTA tutorial videos that you can refer is:

<https://www.youtube.com/watch?v=uPFirakhBtQ>

COMPETITION RULES AND TEAM SPECIFICATIONS

1. Challenge is open to bachelor and master's degree students of any discipline
2. A team can comprise no more than 4 members. Students from different educational institutions can form a team.
3. Each team needs to nominate a point-of-contact member (the team leader).
4. Each team needs to submit all items listed above in Round 1 evaluation requirements before 24th October.
5. The originality of work is essential, and your team will be disqualified if found otherwise.

PRIZE

The prize money will be awarded to the top 3 winners via **NEFT** and will be processed within 30 working days after receiving the prize money from sponsors. Winners have to mail their bank details (immediately after the announcement of results) to kunal@techfest.org, in the format specified below.

FORMAT OF MAIL

Subject: Multi Factor Authentication, Team Id, Position (example - Multi Factor Authentication, MA211003, 1st Position)

BODY OF MAIL

1. Account Holder's Name
2. Account Number
3. Bank name and Branch name
4. IFSC Code