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Q-1) What are the challenges you have faced in your project ?

Q-2) Where you have used Multi Threading in your project ?

Q-3) What is the complex task you have implemented in your project ?

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-> We have implemented CO module to send notices to citizens

-> CO module sending notices to citizen one by one

1 notice is taking 1 sec time to process

1 min : 60 notices

1 hour : $60 * 60$: 3600 notices

Day-1 : 2000 applications : 2000 notices sent

Day-2 : 5000 applications : 3600 notices sent => 1400 notices pending

Day-3 : 10000 applications : 3600 notices sent => 6400 + 1400 notices are pending

Day-4 : 20k applications: 3600 notices sent => so many notices are pending...

=> To improve performance of Notice Generation we have used Multi Threading in our project.

=> Instead of running our program with single thread we have created 10 threads to execute notice processing.

1 sec : 10 threads : 10 notices

1 min: $60 * 10$: 600 notices

1 hour : $600 * 60$ = 36000 notices

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Q-4) What are the design patterns you have used in your project ?

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1) Singleton Design Pattern

2) Factory Design Pattern

3) Builder Design Pattern

4) Microservices Design Pattern

5) Circuit Breaker Design Pattern

6) Api Gateway Design Pattern

7) MVC Design Pattern

8) Cache Design Pattern

9) Strategy Design Pattern

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Q-5) How you implemented Exception Handling in your project ?

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We have implemented Global Exception Handling concept using @ControllerAdvice and @ExceptionHandler annotations.

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Q-6) How you implemented Security in your project ?

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We have used Spring security concept in our project using JdbcAuthentication with the help of UserDetailsService.

```
public User loadUserByUsername(String username){  
    // logic  
}
```

We are accessing few third party apis in our project and those are secured by using JWT tokens. We will make a request for token with authentication credentials then we will make actual request with JWT to get the response.

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Q-7) Where do you store your application properties ?

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We are using Config Server to externalize application properties from source code

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Q-8) How to deploy application ?

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=> We are using Jenkins CI CD pipeline to deploy docker image into AWS EKS cluster.

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Q-9) How one microservice will communicate with another microservice ?

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For Interservice communication thru service registry : FeignClient

For third party apis : RestTemplate / WebClient