

Beyond 200 OK
for your APIs



hello!

I am Pricilla Bilavendran

I am here because, I love to talk about APIs and
spreading API literacy 📖 among Test engineers!!

What you can expect for today?

- ▣ Introduction to the API World
- ▣ Deep dive into API Testing
- ▣ Security Testing aspects for your APIs
- ▣ Performance Testing for your APIs
- ▣ API Automation repertoire
- ▣ Q&A

1. APIs, APIs & APIs...

The API Revolution

Few Interesting stats about APIs

- ▣ 90% of Developers are using APIs by some means
- ▣ 91% of Organizations had API Security Incidents in 2020
- ▣ Open Banking predicted to have 130 Million Users by 2024
- ▣ 93.4% of API Developers are still using REST
- ▣ 65% of companies are accelerating digital transformation after pandemic

Source: Nordic APIs dated, Feb 2022

What is changing (changed)?



2. Deep dive into API Testing

Aspects of API Testing



“

***API Testing is no more a luxury, it's a necessity -
Pricilla Bilavendran***



Building the Strategy

Types of API Testing

- ▣ Validation Testing
- ▣ Functional Testing
- ▣ Integration Testing
- ▣ Security Testing
- ▣ Performance Testing
- ▣ Reliability Testing
- ▣ API Documentation Testing
- ▣ Regression Testing

3. API Security

Security is ~~someones~~ everyone's responsibility



“

***Confirmation of the user's identity, authentication,
and session management is critical to protect
against authentication-related attacks. - OWASP***

Top 10 vulnerabilities for APIs

- ▣ API1:2019 Broken Object Level Authorization
- ▣ API2:2019 Broken User Authentication
- ▣ API3:2019 Excessive Data Exposure
- ▣ API4:2019 Lack of Resources & Rate Limiting
- ▣ API5:2019 Broken Function Level Authorization
- ▣ API6:2019 Mass Assignment
- ▣ API7:2019 Security Misconfiguration
- ▣ API8:2019 Injection
- ▣ API9:2019 Improper Assets Management
- ▣ API10:2019 Insufficient Logging & Monitoring

API Security Testing

- ▣ To add Security testing as part of your API Testing
- ▣ Pay attention to the error codes/messages
- ▣ Prioritize the Role Based scenarios
- ▣ Proper Authentication/Authorization
- ▣ Continuous Monitoring
- ▣ Understanding the known vulnerabilities
- ▣ It's a continuous process...

Bonus Tips to Secure your APIs

- Data Encryption
- Digital Signatures/Certificates
- Conducting Legal Audits
- Retire the old/unused versions of APIs

Twitter Hack 2020

Twitter accounts of Joe Biden,
Amazon CEO Jeff Bezos, President
Barack Obama, Tesla CEO Elon
Musk are hacked

Source: [Wiki](#)



4. API Performance

Are they performing enough?



500. That's an error.

The server encountered an error and could not complete your request.

If the problem persists, please [report](#) your problem and mention this error message and the query that caused it.
That's all we know.





“

The rabbit runs faster than the fox, because the rabbit is running for his life while the fox is only running for his dinner. - Aesop (Greek fabulist)

Why Performance Testing?



- ▣ APIs decides the overall application performance
- ▣ Stability, Scalability & Speed
- ▣ Customer gratification

How to measure the API Performance?

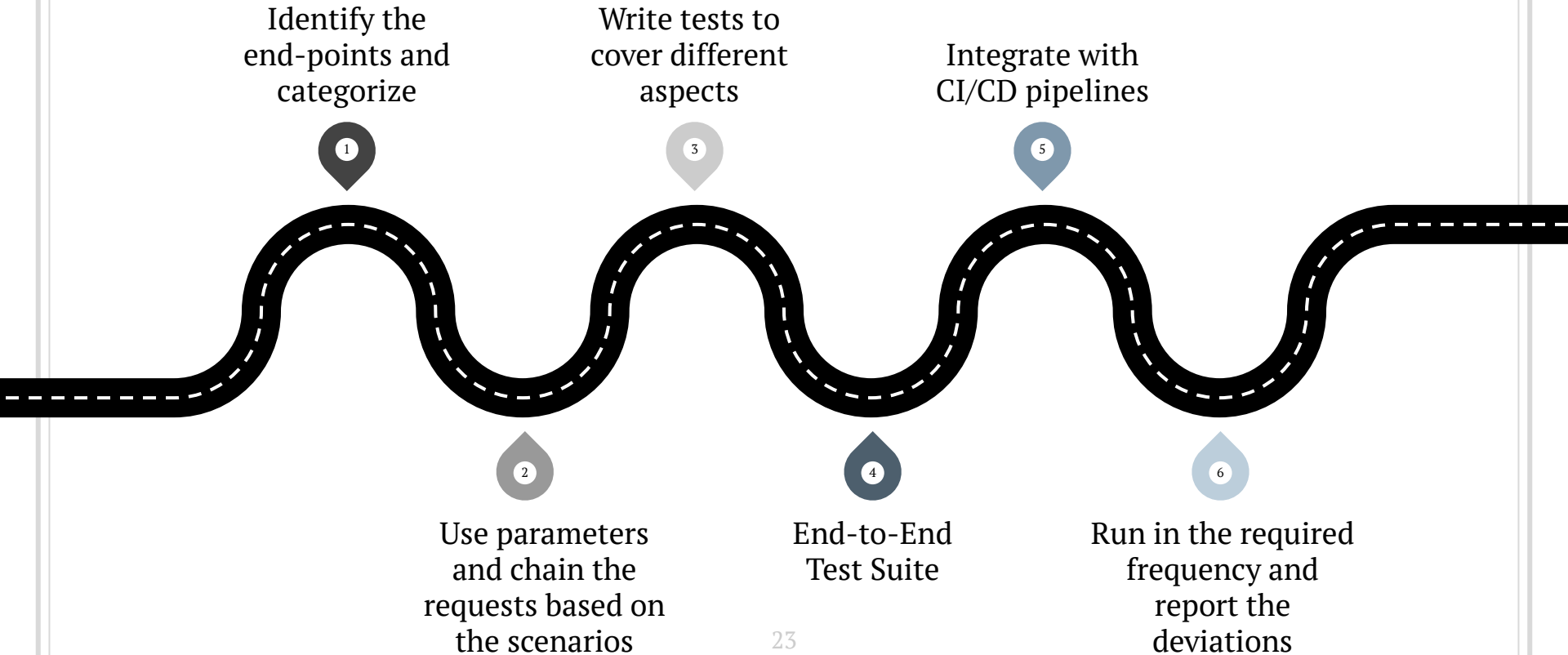
- ▣ Response Time
- ▣ Uptime/Availability
- ▣ Requests Per min
- ▣ Latency
- ▣ Errors

A black and white photograph of a coastal promenade. In the foreground, a tall, ornate street lamp stands on the left. The promenade is paved with cobblestones and lined with several other similar street lamps that recede into the distance. To the left of the promenade is the sea, with gentle waves visible. On the right, a person is walking away from the camera towards the horizon. The scene is shrouded in a thick fog, creating a moody and atmospheric setting.

Need of an hour!!

API Tests Automation

How to?



Merits of API Automation



Efficient APIs

Helps to create high quality APIs



Cost minimization

Finding potential defects at early stages



Increased Coverage

Covering the positive, negative, security and performance tests



Helps other stakeholders

Developers and other related business owners can also execute the scripts



Avoids Manual Errors

To some extent few human errors can be avoided

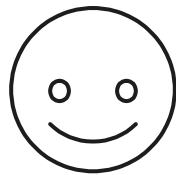


Easy to maintain

Integration with the CI/CD pipelines, parametrization etc. helps to maintain the scripts easily

Recap...

- ▣ APIs are the new normal
- ▣ To involve different types of API Tests
- ▣ Watch out for the vulnerability lists from OWASP
- ▣ Good APIs build good performing applications
- ▣ API Automation is a holistic process



Thanks!

Any questions?

You can find me at



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Credits

Special thanks to all the people who made and released these awesome resources for free:

- ▣ Presentation template by SlidesCarnival
- ▣ Photographs by Unsplash