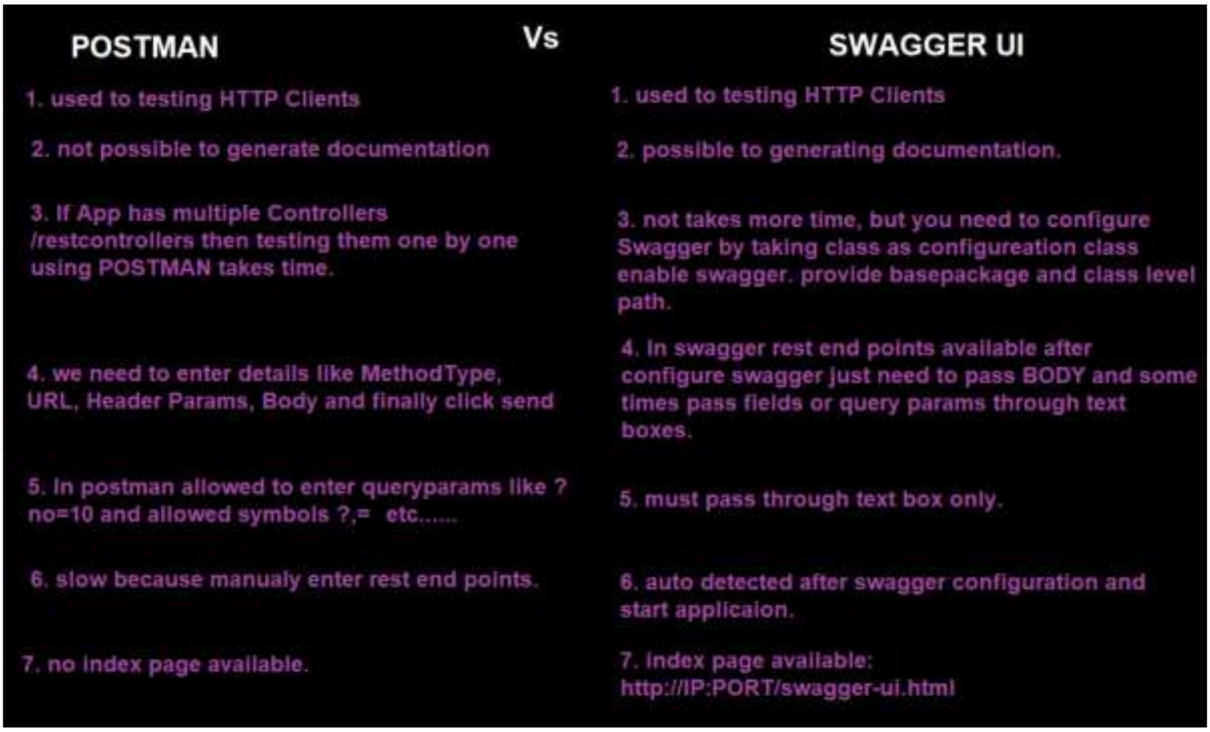
SWAGGER UI

Postman:

- ⇨ Postman is tool used to Test Web/webservice applications.
- ⇨ Here we need to enter all details manually, like URL, httpMethod, Headers, Body…ect..
- ⇨ If App has multiple Controllers then testing them one by one using POSTMAN takes time.
- ⇨ We can use postman for .net,python..etc..
- ⇨ POSTMAN: Tool used to make HTTP Request(to any producer application)
- ⇨ It is used for Testing purpose only.
- ⇨ Manually Tool, enter all details manually URL, HttpMethod, …etc..



POSTMAN	Vs	SWAGGER UI
1. used to testing HTTP Clients		1. used to testing HTTP Clients
2. not possible to generate documentation		2. possible to generating documentation.
3. If App has multiple Controllers /restcontrollers then testing them one by one using POSTMAN takes time.		3. not takes more time, but you need to configure Swagger by taking class as configureation class enable swagger. provide basepackage and class level path.
4. we need to enter details like MethodType, URL, Header Params, Body and finally click send		4. In swagger rest end points available after configure swagger just need to pass BODY and some times pass fields or query params through text boxes.
5. In postman allowed to enter queryparams like ?no=10 and allowed symbols ?,= etc......		5. must pass through text box only.
6. slow because manualy enter rest end points.		6. auto detected after swagger configuration and start applicaion.
7. no index page available.		7. Index page available: http://IP:PORT/swagger-ui.html

Swagger UI:(API/Tool)

- **Swagger UI will scan all possible methods and their URLs from Application and creates one dynamic UI (Docket).**
- **No need to enter URLs, Method types manually.**
- **In case of Project, it contains multiple RestControllers (ex: 10, Employee, Student, Course..etc) then Swagger is better.**
- **Swagger is not from Spring Boot, this is 3rd party ie SpringFox company.**
- **Swagger is used for java APIs testing.**
- **Swagger is mostly used which automates URL, HttpMethod, Detect all methods at one common UI generated at runtime.**
- **It is onetime configuration.**

- ⇨ **It is 3rd party API(not from Spring Boot/Pivotal) it is given by SpringFox.**

- ⇨ **/** indicates any multi-level path. Ex: api/test/one/high**

- ⇨ **Dynamic UI named as Docket.**

- ⇨ **Used to testing controller/rest controller http methods.**
  Methods like GET, POST, PUT, DELETE, etc..

- ⇨ **Swagger used to generate API Documentation.**

- ⇨ **Faster than postman because of auto detected all http methods swagger UI.**

- ⇨ **No need to enter method names, contextpath, class path, method path and no need to enter query parameters like ?no=90.**

- ⇨ **Need to configure Swagger UI in one configuration class.**

- ⇨ **If your application using security provide .permitAll() access for swagger UI.**

- ⇨ **Inside Swagger configuration class enable swagger UI through annotation** @EnableSwagger2 .

- ⇨ **Create one bean method for Docket image.**

- ⇨ **Pass basePackage and class level path to detect methods.**

- ⇨ **If you want to detect all classes and methods then use any() method.**

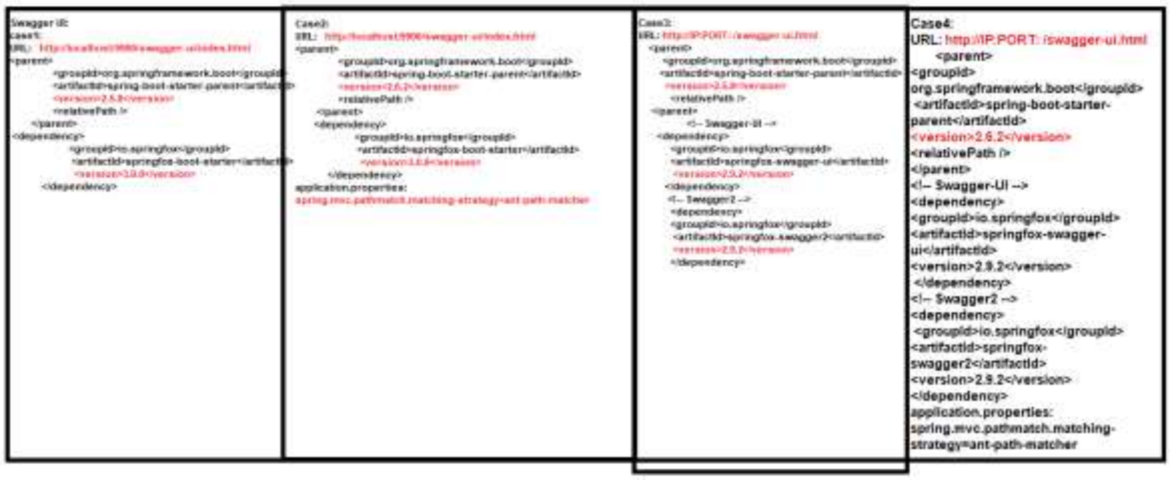
- ➪ **Swagger UI This concept is used for Testing our RestController by making it as Easy UI.**

- ➪ **OpenAPI Specification (formerly Swagger Specification) is an API description format for REST APIs. An OpenAPI file allows you to describe your entire API.**

- ➪ **Swagger is a set of open-source tools built around the OpenAPI Specification that can help you design, build, document and consume REST APIs.**

- ➪ **Swagger also only HTTP Client used for Testing App.**

- ➪ **Swagger UI, we need to enter only Inputs (body/Params) Other things are taken care by Swagger UI only.**



```
Swagger UI:
case1:
URL: http://localhost:9900/swagger-ui/index.html
<parent>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-parent</artifactId>
        <version>2.5.8</version>
        <relativePath />
    </parent>
<dependency>
          <groupId>io.springfox</groupId>
          <artifactId>springfox-boot-starter</artifactId>
          <version>3.0.0</version>
      </dependency>
```

```
Case2:
URL: http://localhost:9900/swagger-ui/index.html
<parent>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-parent</artifactId>
        <version>2.6.2</version>
        <relativePath />
    </parent>
    <dependency>
          <groupId>io.springfox</groupId>
          <artifactId>springfox-boot-starter</artifactId>
          <version>3.0.0</version>
      </dependency>
application.properties:
spring.mvc.pathmatch.matching-strategy=ant-path-matcher
```

```
Case3:
URL: http://IP:PORT/swagger-ui.html
  <parent>
    <groupId>org.springframework.boot</groupId>
   <artifactId>spring-boot-starter-parent</artifactId>
    <version>2.5.8</version>
     <relativePath />
  </parent>
        <!-- Swagger-UI -->
   <dependency>
     <groupId>io.springfox</groupId>
     <artifactId>springfox-swagger-ui</artifactId>
     <version>2.9.2</version>
    </dependency>
    <!-- Swagger2 -->
     <dependency>
     <groupId>io.springfox</groupId>
      <artifactId>springfox-swagger2</artifactId>
     <version>2.9.2</version>
     </dependency>
```

```
Case4:
URL: http://IP:PORT: /swagger-ui.html
      <parent>
<groupId>
org.springframework.boot</groupId>
 <artifactId>spring-boot-starter-
parent</artifactId>
<version>2.6.2</version>
<relativePath />
</parent>
<!-- Swagger-UI -->
<dependency>
<groupId>io.springfox</groupId>
<artifactId>springfox-swagger-
ui</artifactId>
<version>2.9.2</version>
 </dependency>
<!-- Swagger2 -->
<dependency>
 <groupId>io.springfox</groupId>
<artifactId>springfox-
swagger2</artifactId>
<version>2.9.2</version>
</dependency>
application.properties:
spring.mvc.pathmatch.matching-
strategy=ant-path-matcher
```

Case1:

Dependencies:

```
<parent>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-parent</artifactId>
        <version>2.5.8</version>
        <relativePath />
```

```
</parent>


 <!-- Swagger-UI -->
  <dependency>
        <groupId>io.springfox</groupId>
        <artifactId>springfox-swagger-ui</artifactId>
        <version>2.9.2</version>
  </dependency>

  <!-- Swagger2 -->
  <dependency>
        <groupId>io.springfox</groupId>
        <artifactId>springfox-swagger2</artifactId>
        <version>2.9.2</version>
  </dependency>
```

⇨ Swagger UI index page:

http://IP:PORT: /swagger-ui.html

Example Swagger config class:

```
package com.config;

import org.springframework.context.annotation.Bean;
import org.springframework.context.annotation.Configuration;

import springfox.documentation.builders.PathSelectors;
import springfox.documentation.builders.RequestHandlerSelectors;
import springfox.documentation.spi.DocumentationType;
import springfox.documentation.spring.web.plugins.Docket;
import springfox.documentation.swagger2.annotations.EnableSwagger2;

@Configuration
@EnableSwagger2
public class SwaggerConfig {


@Bean

 //Create one Docket (Final Screen View)
public Docket createDocket() {
    return new Docket(DocumentationType.SWAGGER_2)

        .select() //select all rest controllers common package
        //.apis(RequestHandlerSelectors.basePackage("com.controller"))
```

```
            //inside package
            .apis(RequestHandlerSelectors.any())

            //.paths(PathSelectors.regex("/app.*")) //restcontroller class level path
            .paths(PathSelectors.any())

            //Call build method that create docket with RestController objects
            .build().useDefaultResponseMessages(false);
            }
}
```

Case-2:

Step1:
Dependencies:

```
    <parent>
          <groupId>org.springframework.boot</groupId>
          <artifactId>spring-boot-starter-parent</artifactId>
          <version>2.6.2</version>
          <relativePath></relativePath>
     </parent>

      <dependency>
            <groupId>io.springfox</groupId>
            <artifactId>springfox-boot-starter</artifactId>
            <version>3.0.0</version>
     </dependency>
```

Step2:

application.properties:

```
# Server Properties
server.port=9900

#Swagger UI
spring.mvc.pathmatch.matching-strategy=ant-path-matcher
```

step3:

SwaggerConfig:

```
package com.config;
```

```
import org.springframework.context.annotation.Bean;
import org.springframework.context.annotation.Configuration;

import springfox.documentation.builders.PathSelectors;
import springfox.documentation.builders.RequestHandlerSelectors;
import springfox.documentation.spi.DocumentationType;
import springfox.documentation.spring.web.plugins.Docket;
import springfox.documentation.swagger2.annotations.EnableSwagger2;

@Configuration
@EnableSwagger2
public class SwaggerConfig {

	@Bean
	public Docket createDocket() {
	  return new Docket(DocumentationType.SWAGGER_2)
			.select()
			.apis(RequestHandlerSelectors.any())//restcontrollers
package
			.paths(PathSelectors.any()) //restcontroller class level path
			.build()
			;
	}

}
```

Step4:

```
package com.controller;

import org.springframework.http.HttpStatus;
import org.springframework.http.ResponseEntity;
import org.springframework.web.bind.annotation.GetMapping;
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.bind.annotation.RestController;

@RestController
@RequestMapping("/test")
public class SwaggerUIRestController {
	/**
	 * URL: http://localhost:9900/test/message
	 * @return
	 */
	@GetMapping("/message")
	public ResponseEntity<String> showMessage(){

		return new ResponseEntity
				<String>("Welcome to Spring Boot Rest Programming..",
                                        HttpStatus.OK);
        }

}
```

Step6:

URL:

http://localhost:9900/swagger-ui/index.html

---

case3:

URL: **http://localhost:9900/swagger-ui/index.html**

```
<parent>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter-parent</artifactId>
            <version>2.5.8</version>
            <relativePath />
      </parent>
     <dependency>
                 <groupId>io.springfox</groupId>
                  <artifactId>springfox-boot-starter</artifactId>
                   <version>3.0.0</version>
         </dependency>
```

Case4:

URL: **http://IP:PORT: /swagger-ui.html**

```
          <parent>
                 <groupId>org.springframework.boot</groupId>
                 <artifactId>spring-boot-starter-parent</artifactId>
                 <version>2.6.2</version>
                 <relativePath />
    </parent>
               <!-- Swagger-UI -->
                   <dependency>
                           <groupId>io.springfox</groupId>
                           <artifactId>springfox-swagger-ui</artifactId>
                           <version>2.9.2</version>
                   </dependency>
                   <!-- Swagger2 -->
                   <dependency>
                           <groupId>io.springfox</groupId>
                           <artifactId>springfox-swagger2</artifactId>
                           <version>2.9.2</version>
           </dependency>
```

application.properties:

spring.mvc.pathmatch.matching-strategy=ant-path-matcher

Disabling default Response messages:

```
package com.config;

import org.springframework.context.annotation.Bean;
import org.springframework.context.annotation.Configuration;

import springfox.documentation.builders.PathSelectors;
import springfox.documentation.builders.RequestHandlerSelectors;
import springfox.documentation.spi.DocumentationType;
import springfox.documentation.spring.web.plugins.Docket;
import springfox.documentation.swagger2.annotations.EnableSwagger2;

@Configuration
@EnableSwagger2
public class SwaggerConfig {

        @Bean
        public Docket createDocket() {
                return new Docket(DocumentationType.SWAGGER_2)
                                .select()
                                .apis(RequestHandlerSelectors.any())//restcontrollers
path
                                .paths(PathSelectors.any()) //starter class path
                                /**
                                 * Disabling defualt Response messages
                                 * 401   :   Unauthorized
                                 * 403   :   Forbidden
                                 * 404   :   Not Found
                                 */
                                .build().useDefaultResponseMessages(false)
                                ;
        }

}
```

Appliction1:

pom.xml:

```
<parent>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-parent</artifactId>
        <version>2.5.8</version>
        <relativePath /> <!-- lookup parent from repository -->
    </parent>
    <properties>
        <java.version>11</java.version>
    </properties>
    <dependencies>
    <!-- Swagger -->
```

```xml
        <dependency>
            <groupId>io.springfox</groupId>
            <artifactId>springfox-boot-starter</artifactId>
            <version>3.0.0</version>
        </dependency>
```

Application.properties:

```properties
# Server Properties
server.port=9900
```

SwaggerConfig:

```java
package com.config;

import org.springframework.context.annotation.Bean;
import org.springframework.context.annotation.Configuration;

import springfox.documentation.builders.PathSelectors;
import springfox.documentation.builders.RequestHandlerSelectors;
import springfox.documentation.spi.DocumentationType;
import springfox.documentation.spring.web.plugins.Docket;
import springfox.documentation.swagger2.annotations.EnableSwagger2;

@Configuration
@EnableSwagger2
public class SwaggerConfig {

    @Bean
    public Docket createDocket() {
        return new Docket(DocumentationType.SWAGGER_2)
                .select()

    .apis(RequestHandlerSelectors.basePackage("com"))//starter path like com
                /**
                 * RestController class level path
                 * . means single character and * means more
characters..
                */
                .paths(PathSelectors.regex("/.*"))
                /**
                 * Disabling defualt Response messages
                 * 401 :    Unauthorized
                 * 403 :    Forbidden
                 * 404 :    Not Found
                 */
                .build().useDefaultResponseMessages(false)
                ;
    }
}
```

RestController:

```
package com.controller;

import org.springframework.http.HttpStatus;
import org.springframework.http.ResponseEntity;
import org.springframework.web.bind.annotation.GetMapping;
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.bind.annotation.RestController;

@RestController
@RequestMapping("/test")
public class SwaggerUIRestController {
	/**
	 * URL: http://localhost:9900/test/message
	 * @return
	 */
	@GetMapping("/message")
	public ResponseEntity<String> showMessage(){

		return new ResponseEntity
				<String>("Welcome to Spring Boot Rest Programming..",
				HttpStatus.OK);
	}

}
```

//Added Contact info, APIInfo, VendorExpression:

```
package com.config;

import java.util.ArrayList;
import java.util.List;

import org.springframework.context.annotation.Bean;
import org.springframework.context.annotation.Configuration;

import springfox.documentation.builders.PathSelectors;
import springfox.documentation.builders.RequestHandlerSelectors;
import springfox.documentation.service.ApiInfo;
import springfox.documentation.service.Contact;
import springfox.documentation.service.VendorExtension;
import springfox.documentation.spi.DocumentationType;
import springfox.documentation.spring.web.plugins.Docket;
import springfox.documentation.swagger2.annotations.EnableSwagger2;
```

```
@Configuration
@EnableSwagger2
public class SwaggerConfig {

    @Bean
    public Docket createDocket() {
        return new Docket(DocumentationType.SWAGGER_2)
                .select()

    .apis(RequestHandlerSelectors.basePackage("com"))//starter path like com
                /**
                 * RestController class level path
                 * . means single character and * means more
characters..
                 */
                .paths(PathSelectors.regex("/.*"))
                /**
                 * Disabling defualt Response messages
                 * 401 :    Unauthorized
                 * 403 :    Forbidden
                 * 404 :    Not Found
                 */
                .build().useDefaultResponseMessages(false)
                //meta data
                .apiInfo(apiInfo())
                ;
    }
    /**
     * Meta data,
     * only display content
     * @return
     */
    private ApiInfo apiInfo() {
        return new ApiInfo(
                "TestApp", //title
                "Testing for URLs", //Description
                "swagger 3.0", //version
                "https://github.com/karrasankar158 ", // Service URL
                contactInfo(),  //contact
                "own", //  license
                "https://github.com/karrasankar158", // License URL
                expressionInfo()); // Vendor Expressions
    }
    //Contact info
    private Contact contactInfo() {
        return new
Contact("sankar","https://github.com/karrasankar158","sankar@gmail");
    }
```

```
	// expression
	@SuppressWarnings("rawtypes")
	private List<VendorExtension> expressionInfo() {
		ArrayList<VendorExtension> list=new ArrayList<VendorExtension>();
		list.toString();
		return list;
	}

}
```

@ApiIgnore

This annotation applied in class, method levels
This annotation is used to ignore
or hide single or multiple methods
Or all methods in RestController.

Q) How can we avoid showing a method at Swagger UI?
A)
top of method applies:
@ApiIgnore

Display our specified method name for restController methods:
Instead of showing method name at Swagger UI

```
	@ApiOperation("hello")
```

Display our specified restController name:
Instead of showing controller name

@Api(~~description~~ = "test")

Q) How can we restrict using Swagger only at Dev and Test Environments not in production?

A) Profiles Concept:

```
@Profile({"dev","qa"})
//--spring.profiles.active=dev
```

```
package com.config;
```

```
                 */

import java.util.ArrayList;
import java.util.List;

import org.springframework.context.annotation.Bean;
import org.springframework.context.annotation.Configuration;
import org.springframework.context.annotation.Profile;

import springfox.documentation.builders.PathSelectors;
import springfox.documentation.builders.RequestHandlerSelectors;
import springfox.documentation.service.ApiInfo;
import springfox.documentation.service.Contact;
import springfox.documentation.service.VendorExtension;
import springfox.documentation.spi.DocumentationType;
import springfox.documentation.spring.web.plugins.Docket;
import springfox.documentation.swagger2.annotations.EnableSwagger2;

@Configuration
@EnableSwagger2
@Profile({"dev","qa"})
//--spring.profiles.active=dev
public class SwaggerConfig {

    @Bean
    public Docket createDocket() {
        return new Docket(DocumentationType.SWAGGER_2)
                .select()
                .apis(RequestHandlerSelectors.basePackage("com"))//starter path like com
                /**
                 * RestController class level path
                 * . means single character and * means more characters..
                 */
                .paths(PathSelectors.regex("/.*"))
                /**
                 * Disabling defualt Response messages
```

```
                              * 401   :    Unauthorized
                              * 403   :    Forbidden
                              * 404   :    Not Found
                              */
                             .build().useDefaultResponseMessages(false)
                             //meta data
                             .apiInfo(apiInfo())
                             ;
}
/**
 * Meta data,
 * only display content
 * @return
 */
private ApiInfo apiInfo() {
        return new ApiInfo(
                             "TestApp", //title
                             "Testing for URLs", //Description
                             "swagger 3.0", //version
                             "https://github.com/karrasankar158 ", // Service URL
                             contactInfo(),  //contact
                             "own", //  license
                             "https://github.com/karrasankar158", // License URL
                             expressionInfo()); // Vendor Expressions
}

//Contact info
private Contact contactInfo() {
        return new Contact("sankar","https://github.com/karrasankar158","sankar@gmail");
}


// expression
@SuppressWarnings("rawtypes")
```

```
	private List<VendorExtension> expressionInfo() {
		ArrayList<VendorExtension> list=new ArrayList<VendorExtension>();
		list.toString();
		return list;
	}

}
```

application-dev.properties:

```
# Server properties
Server.port=9089
```

application-qa.properties:

```
# Server properties
Server.port=9089
```

Add dependency then automatically enabled security:

```
		<dependency>
			<groupId>org.springframework.boot</groupId>
			<artifactId>spring-boot-starter-security</artifactId>
		</dependency>
```

----------------------------The End---------------------------------------