PV239 - 06 API

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QUESTIONS

- What types of storage did we talk about in the previous exercise?
- What can we use Preferences for?
- What can we use Secure Storage for?
- What can we use SQLite for?
- How does SQLite database work on a phone?

BONUS EXERCISE

- Creating custom controls
- Loading animations
- Application configuration for different environments (dev, test, production)
- Tips for useful tools and libraries

GOALS

- Web API concepts
- Client-server communication
- Generating API client and it's usage to communicate with API

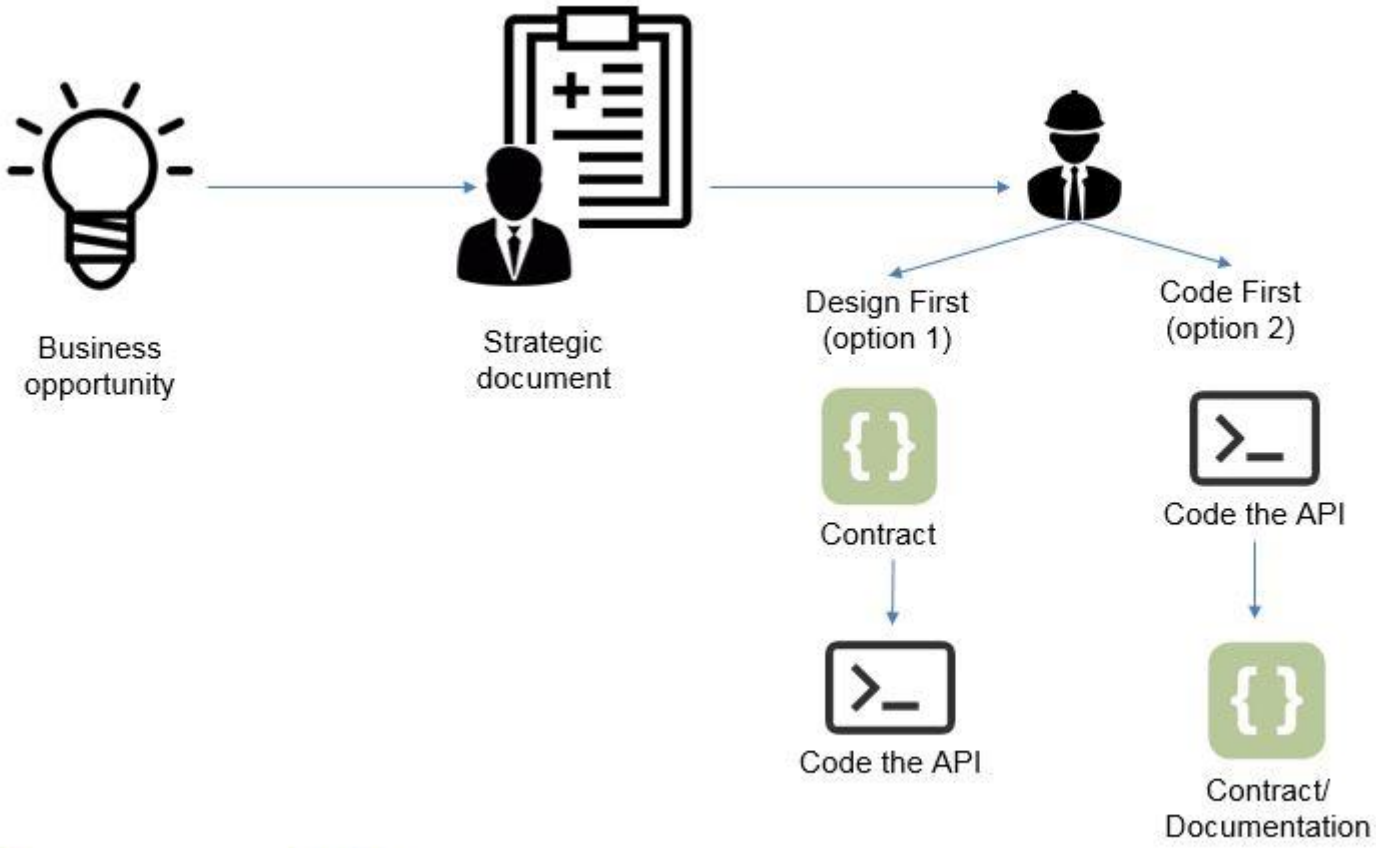
OPENAPI

- Open specification
- Standard for describing REST API
- Language and framework independent
- YAML/JSON
- OpenAPI map: https://openapi-map.apihandyman.io/

SWAGGER

- Tools for creating and working with OpenAPI specification
- Swagger Editor
  - YAML/JSON
- Swagger CodeGen
  - Generating client/server part
- Swagger UI
  - Interactive documentation

APPROACHES FOR CREATING API SPECIFICATION



{ ••• } SWAGGERhub

DESIGN FIRST APPROACH

- SwaggerHub
  - https://app.swaggerhub.com/
- Portal for design first approach
- Supports hosting on own server

CODE FIRST APPROACH

- ASP .NET Core
- Library **NSwag.AspNetCore**

OPEN API CODE FIRST

Demo

SETUP

- Nuget package **NSwag.AspNetCore**
- Add configuration:

```
services.AddOpenApiDocument(document =>
{
    document.Title = "CookBook API";
    document.DocumentName = "cookbook-api";
});
```

SETUP

- Přidat middleware:

```
app.UseOpenApi();
```

- Přidat middleware pro Swagger UI:

```
app.UseSwaggerUi3(settings =>
{
  settings.SwaggerRoutes.Add(
     new SwaggerUi3Route("CookBook API", "/swagger/cookbook-api/swagger.json"));
});
```

SWAGGER EDITOR

- Online version https://editor.swagger.io
- Support for running locally
  - Docker image

GENERATING – ONLINE

- Generator from Swaggeru
- Enables generating directly from browser

https://generator.swagger.io/

- Settings:

```
{
    "options": { "packageName": „LibraryName" },
    "swaggerUrl": „URL of OpenAPI specification"
}
```

GENERATING – SWAGGER CODEGEN CLI

- CLI tool
- Java app
- Download .jar file from Maven

GENERATING - AUTOREST

- CLI tool https://github.com/Azure/autorest
- Installed using NPM
- AutoRest.Csharp – generator for C#

GENERATING - NSWAGSTUDIO

- NSwag - CLI tool
- NSwagStudio - Desktop app
- https://github.com/RSuter/NSwag
- Settings:
  - Namespace
  - Set Operation Generation Mode
  - Path to output file

NSWAGSTUDIO

Demo

USING GENERATED CLIENT

Demo

ADDING CLIENT TO MOBILE APP

- Add client registration to DI container:

```
serviceCollection.AddHttpClient<IIngredientsClient,
IngredientsClient>(client =>
{
    client.BaseAddress = apiBaseUri;
});
```

- For usage in emulators
  - URL for „Localhost“: 10.0.2.2

PROCESSORS

- Used for modifying the OpenAPI specification
- Can be used on multiple levels:
  - IOperationProcessor – modifies individual operations
  - ISchemaProcessor – modifies the schema
  - IDocumentProcessor – modifies the entire document