

Harry's notes for software development

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1 Microservices

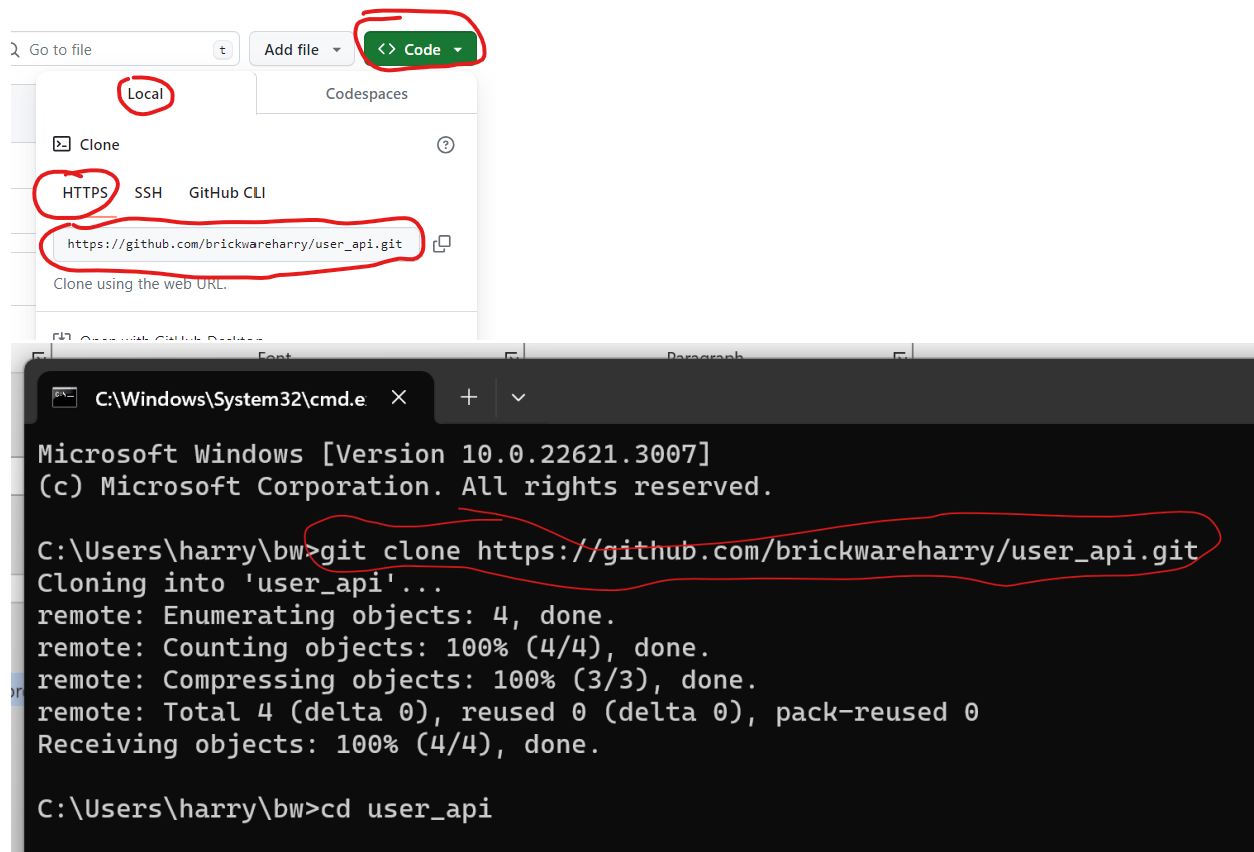
1.1 Definition

Microservices have the architectural style that structures an application as a collection of independently deployable services that are modeled around a business domain and are usually owned by a small team.

2 GitHub related

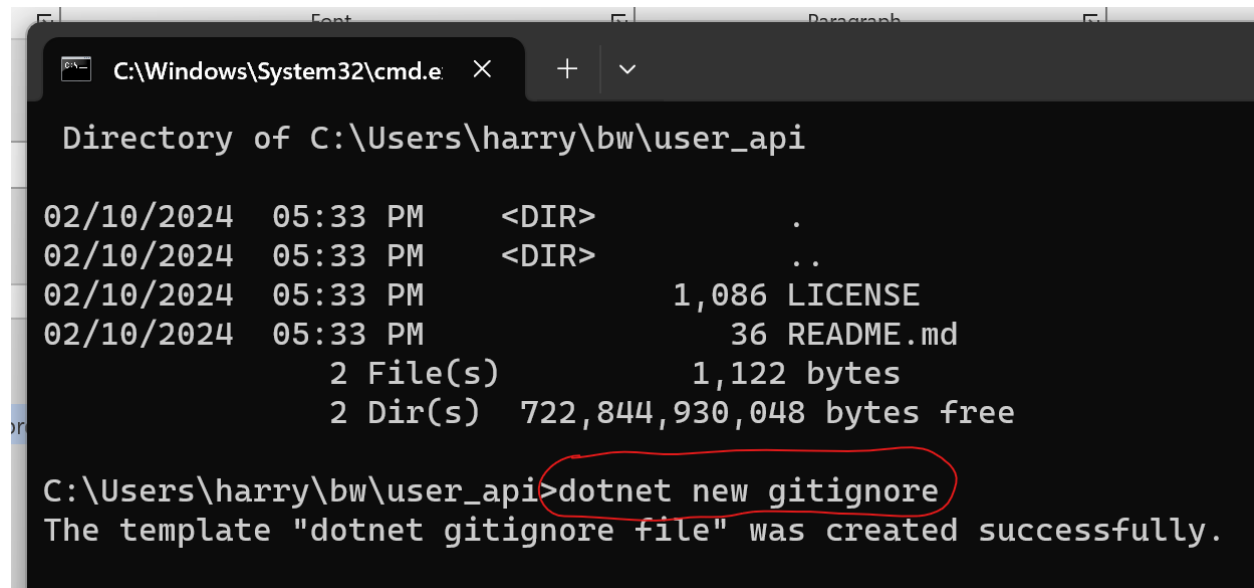
2.1 Git clone

git clone <<URL of git repository, see screenshot below>>



2.2 Create gitignore for .NET

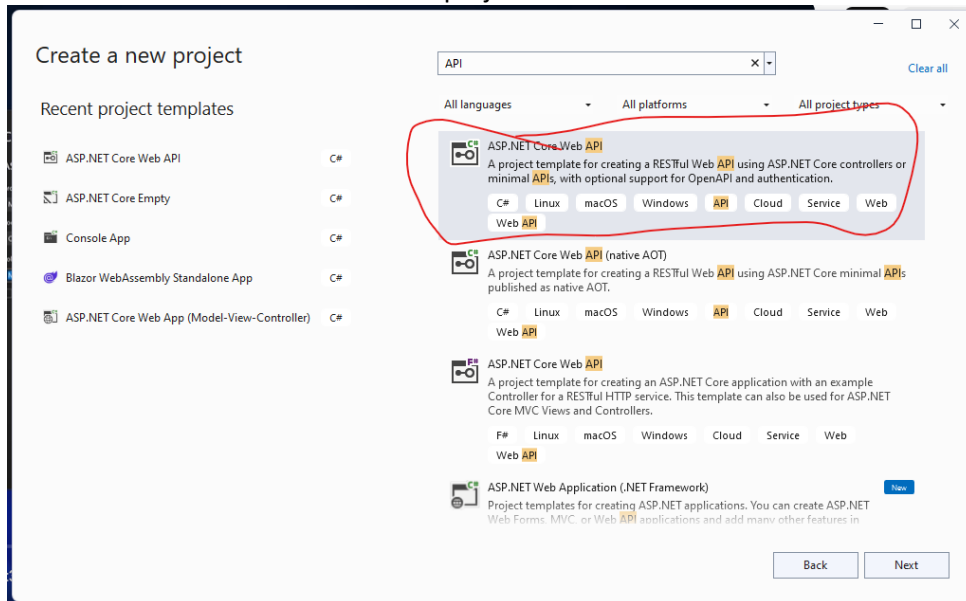
Give command "dotnet new gitignore" in the Command Prompt of the local repository, see screenshot below



3 API (.NET)

3.1 Create API

- Create a new ASP.NET Core Web API project in Visual Studio



Configure your new project

ASP.NET Core Web API C# Linux macOS Windows API Cloud Service Web Web API

Project name
UserApi

Location
C:\Users\harry\bw\user_api\

Solution name
UserApi

☐ Place solution and project in the same directory

Project will be created in "C:\Users\harry\bw\user_api\UserApi\UserApi"

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Additional information

ASP.NET Core Web API C# Linux macOS Windows API Cloud Service Web Web API

Framework
.NET 8.0 (Long Term Support)

Authentication type
None

☒ Configure for HTTPS

☐ Enable Docker

Docker OS
Linux

☒ Enable OpenAPI support

☐ Do not use top-level statements

☒ Use controllers

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4 Controller – .NET for API

4.1 What make the controller to be a controller

- Has a suffix of Controller in the name of the class and file
 - Example: UserApiController
- Derive from the ControllerBase class under namespace of Microsoft.AspNetCore.Mvc
 - Example: public class UserApiController: ControllerBase
 - A using statement is needed below:
 - Example: using Microsoft.AspNetCore.Mvc;
- Need a controller attribute placed above the class
 - Example: [ApiController]

- Need a route attribute placed above the class
 - Example: `[Route("api/UserApi")]` or `[Route("api/[Controller]")]`

4.2 What make an end point to be an end point

- Need a verb attribute place above the function of the end point
 - Example: `[HttpGet]` or `[HttpGet("{id:int}")]`

4.3 Handling return of status codes

- Return type at the function of the end point should be `ActionResult<return type of object>`, e.g. `ActionResult<UserDto>` and `ActionResult<IEnumerable<UserDto>>`
- Verification of the return value can specify the return status, e.g.:
 - `If(id == 0){return BadRequest();}`
 - `If(user == null){return NotFound();}`
 - `return Ok();`

4.4 Document the return status of end point in Swagger

- Attributes `[ProducesResponseType(status code)]` are needed for documenting the status above the function of end point, e.g.
 - `[ProducesResponseType(200)]` or `[ProducesResponseType(StatusCodes.Status200OK)]`
 - `[ProducesResponseType(400)]` or `[ProducesResponseType(StatusCodes.Status400BadRequest)]`
 - `[ProducesResponseType(404)]` or `[ProducesResponseType(StatusCodes.Status404NotFound)]`

5 Visual Studio Code

5.1 Suggested Setting on VS Code

- File -> Auto Save
- File -> Preferences -> Settings -> Text Editor -> Formatting -> Format On Save
- File -> Preferences -> Settings -> Search(place open brace on new line)-> JavaScript Place Open Brace on New Line For Control Blocks
- File -> Preferences -> Settings -> Search(place open brace on new line)-> JavaScript Place Open Brace on New Line For Functions
- File -> Preferences -> Settings -> Search(place open brace on new line)-> TypeScript Place Open Brace on New Line For Control Blocks
- File -> Preferences -> Settings -> Search(place open brace on new line)-> TypeScript Place Open Brace on New Line For Functions

5.2 If not .vscode folder generated

- Generate the .vscode folder manually by opening your Command Palette (CTRL + SHIFT + P) and then select .NET: Generate Assets For Build And Debug.
- The .vscode folder has launch.json and tasks.json

6 Dotnet CLI commands

- `dotnet new -list`
 - list all the template projects which can be built
- `dotnet new webapi -n <<project name>> -controllers`
 - create an webapi project with the given project name

7 Items is being Looked for solutions