Harry's notes for software development

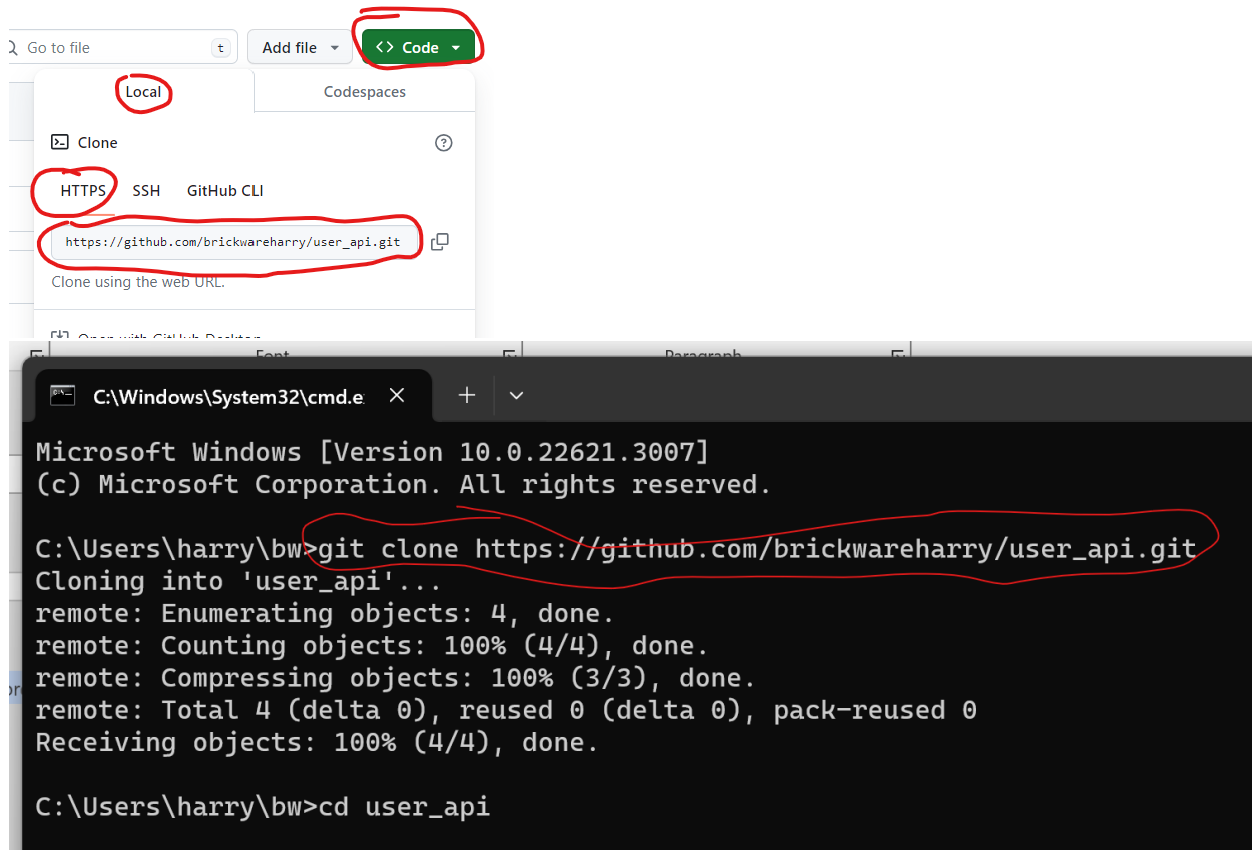## Table of Contents

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
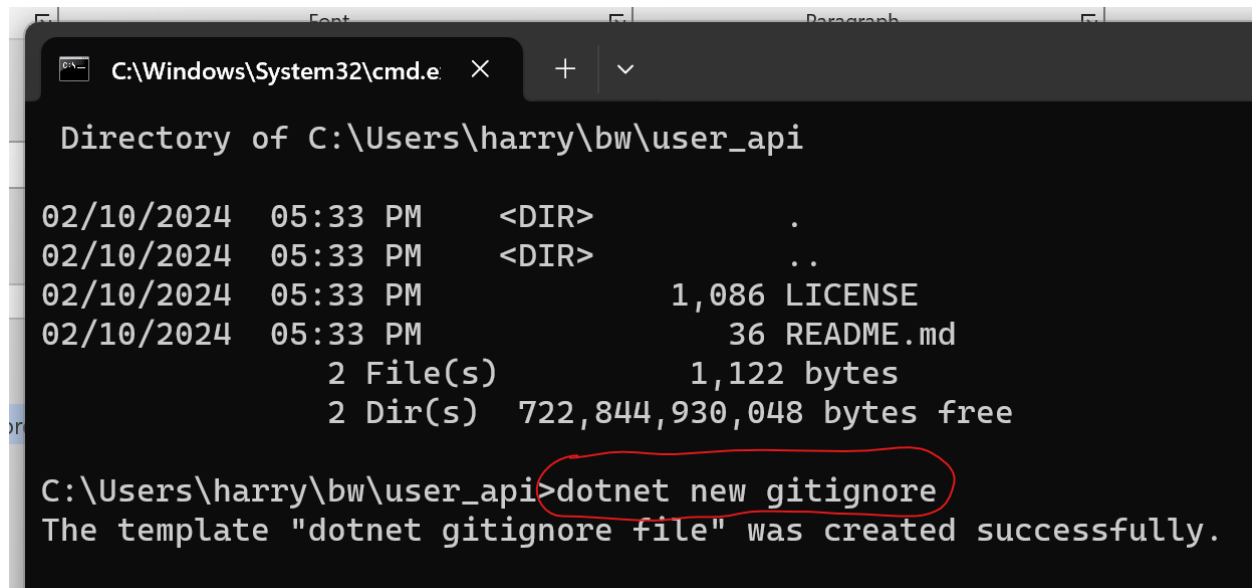
2.1   Git clone

git clone <<URL of git repository, see screenshot below>>
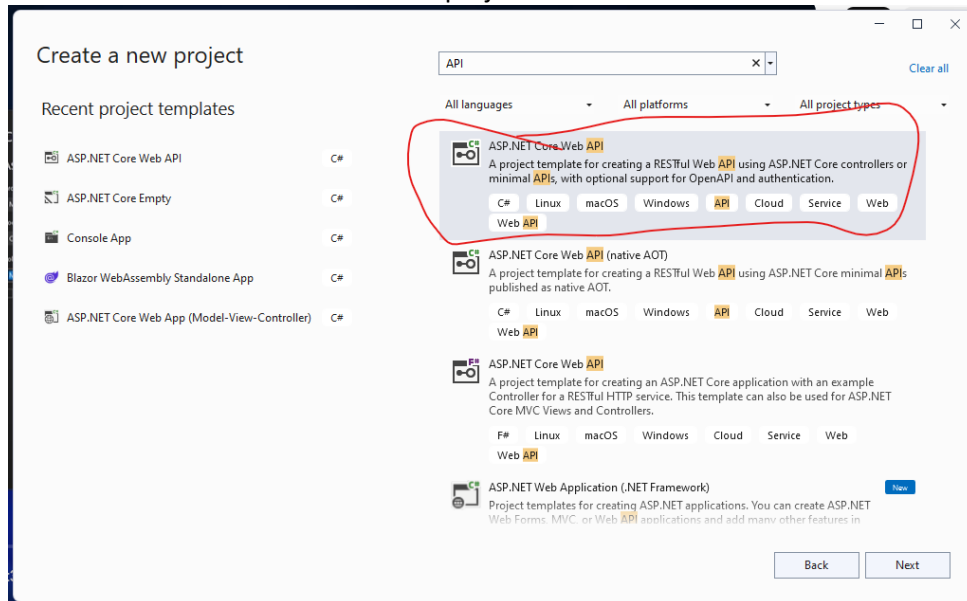
2.2   Create gitignore for .NET

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

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

- dotnet new console –name <<project name>>
  - this creates an project with the name and also create a new folder holding the project
  - if –name <<project name>> is not provided, the project will be created in current folder and the folder name will be the project name
  - --use-program-main for not using top level statement (i.e. there is static void Main(string[] args) in program.cs)

7   Items is being Looked for solutions