**Project 1: Implement azure active directory (azure ad) authentication**

Objective: implementing azure active directory (azure ad) authentication for a web application

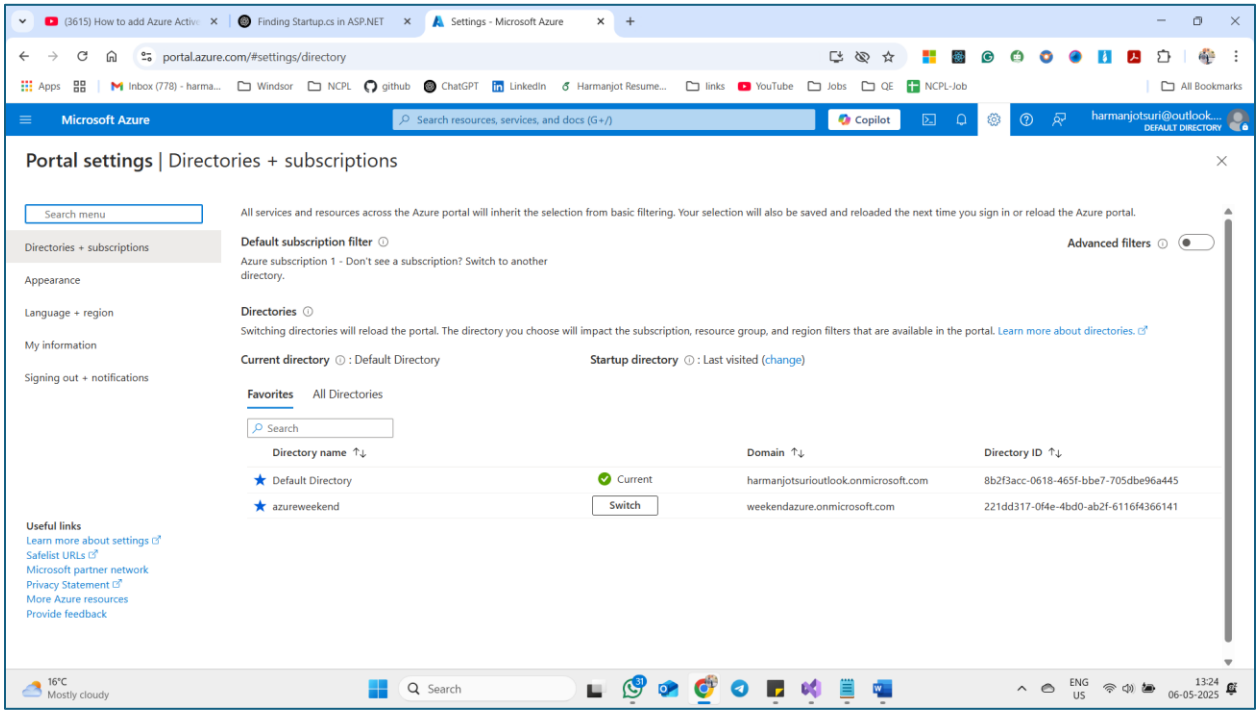
Step-By-Step:

- https://learn.microsoft.com/en-us/azure/active-directory/develop/

- https://learn.microsoft.com/en-us/aspnet/core/security/authentication/azure-active-directory/

```text
[User] ──▶ [ASP.NET Core App] ──▶ [Azure AD]
              (redirects)         (login + consent)
                                  ◀──────────────
                receives token ──▶ validates + logs in
```

**1.Create an azure active directory (azure ad) tenant.**



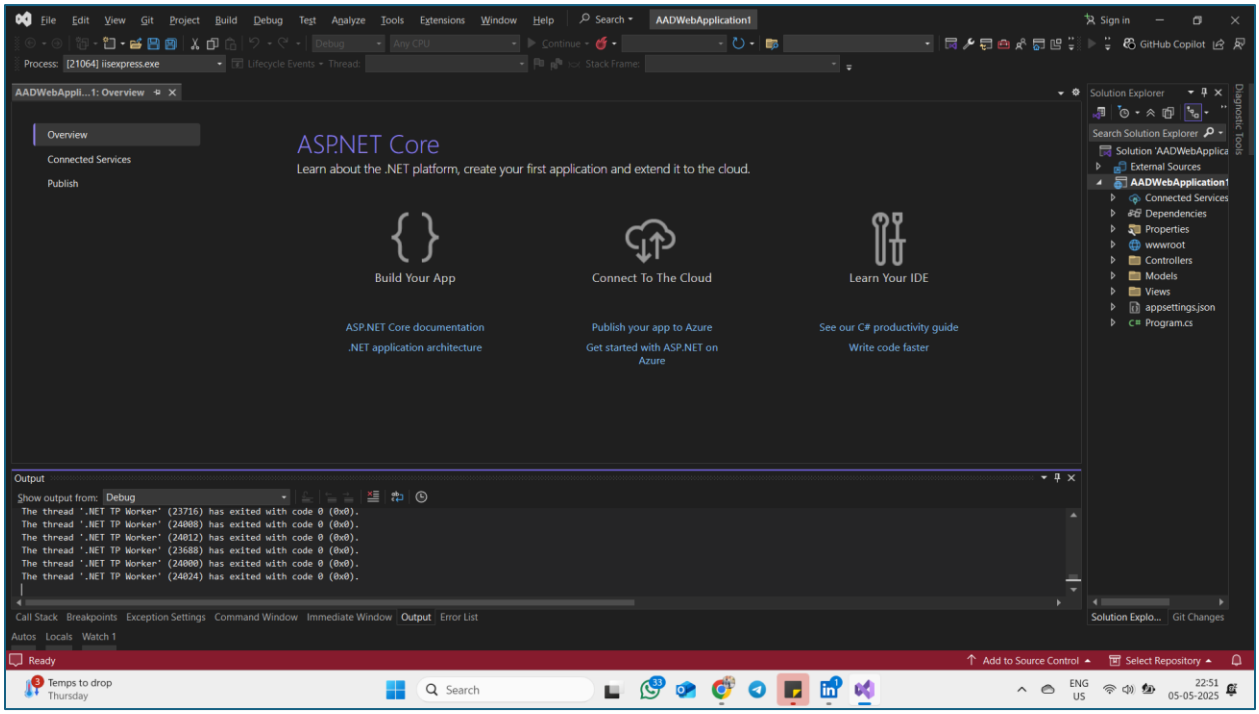

**2.Create ASP.NET MVC Application**

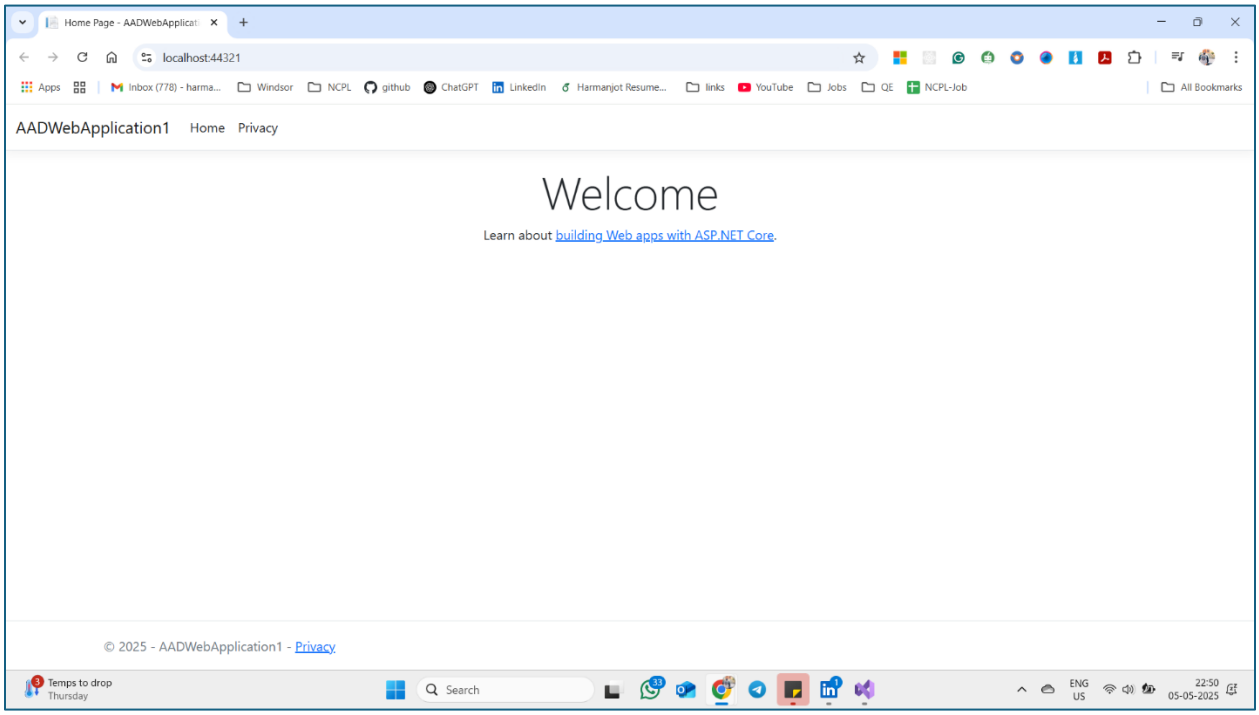
MVC stands for Model–View–Controller — it's a software architectural pattern used to build web applications in a structured and maintainable way.

Model – The data layer

View – The UI layer

Controller – The logic layer

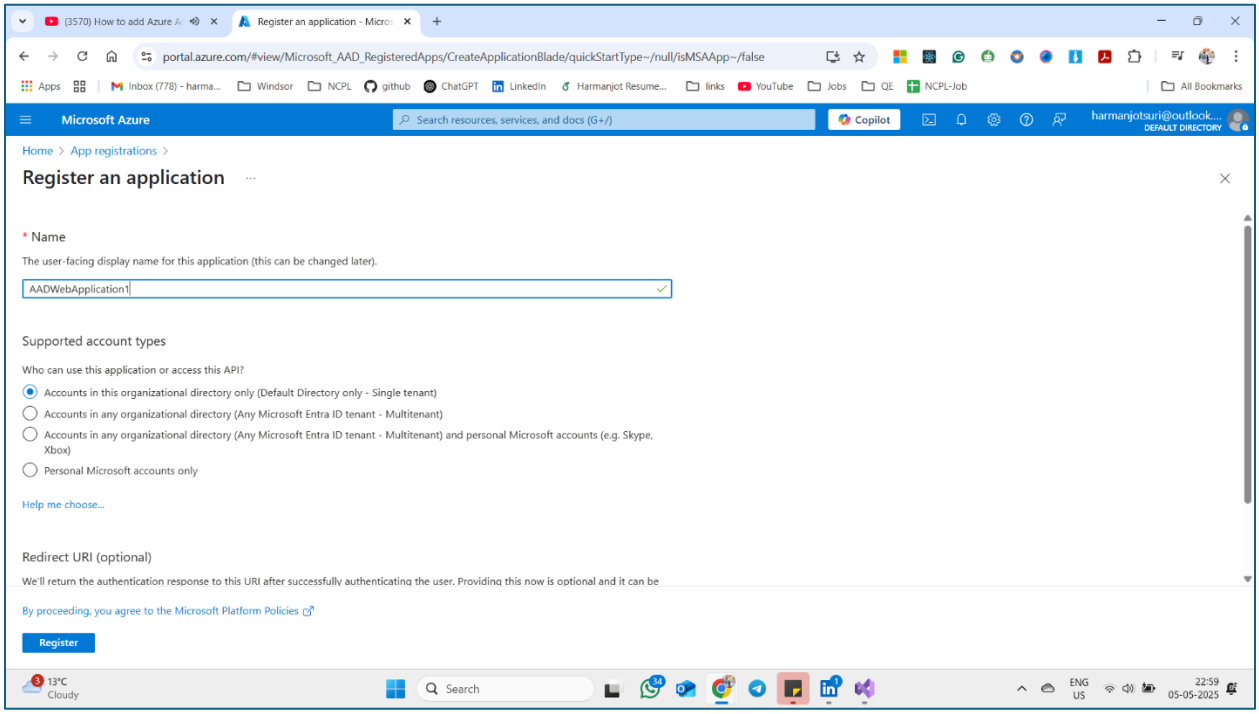


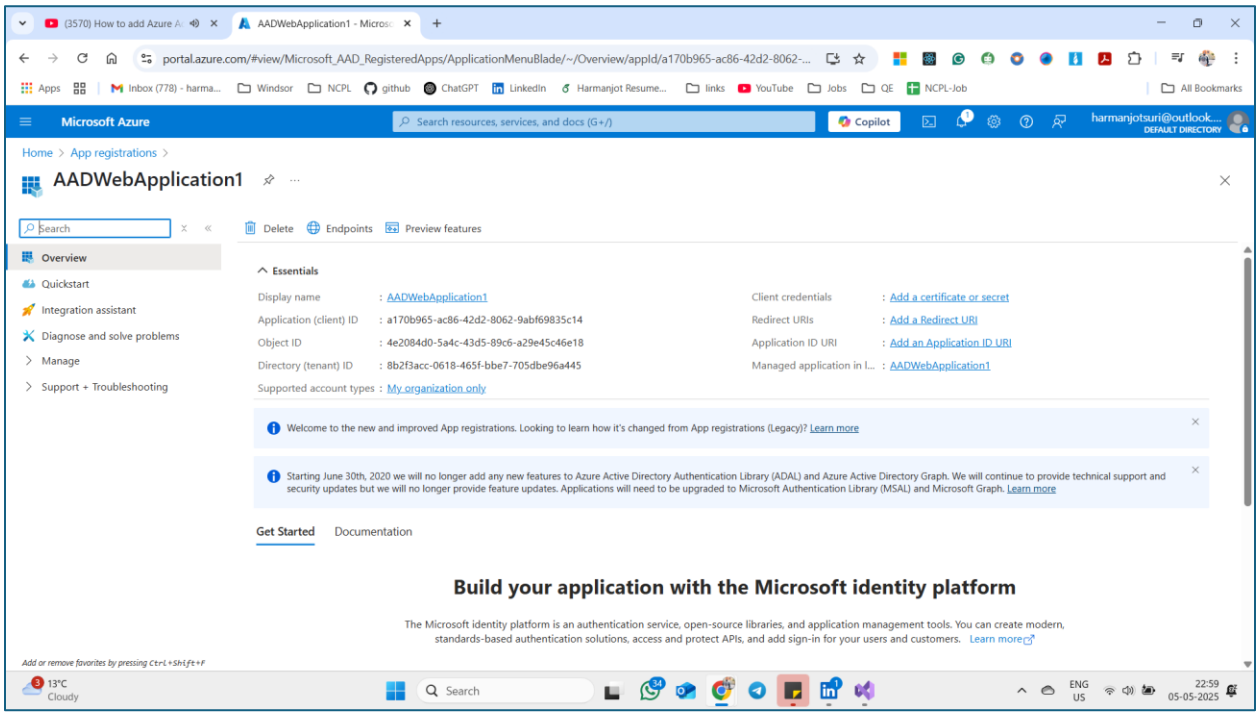




**3.Register an application in azure ad**

Azure App Registration is the process of registering your application in Azure Active Directory (Azure AD) so it can:

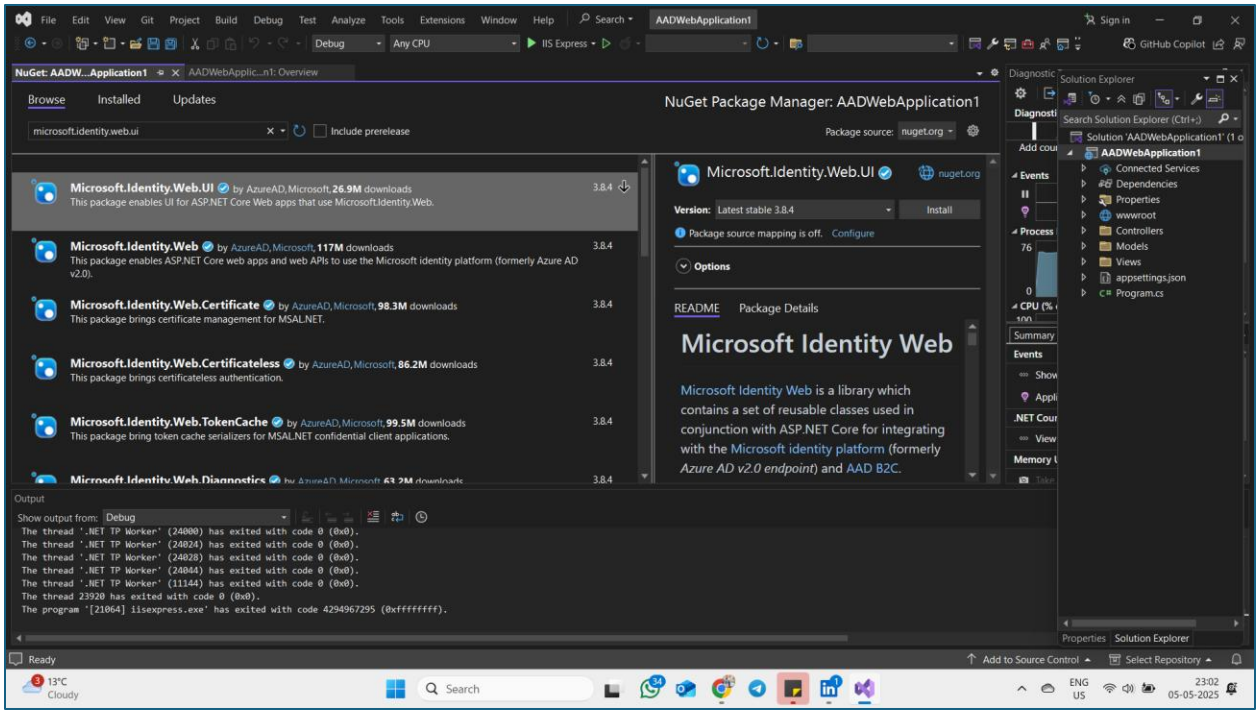
Authenticate users (sign in), Access Microsoft APIs (like Microsoft Graph), Be secured with tokens (OAuth 2.0 / OpenID Connect)

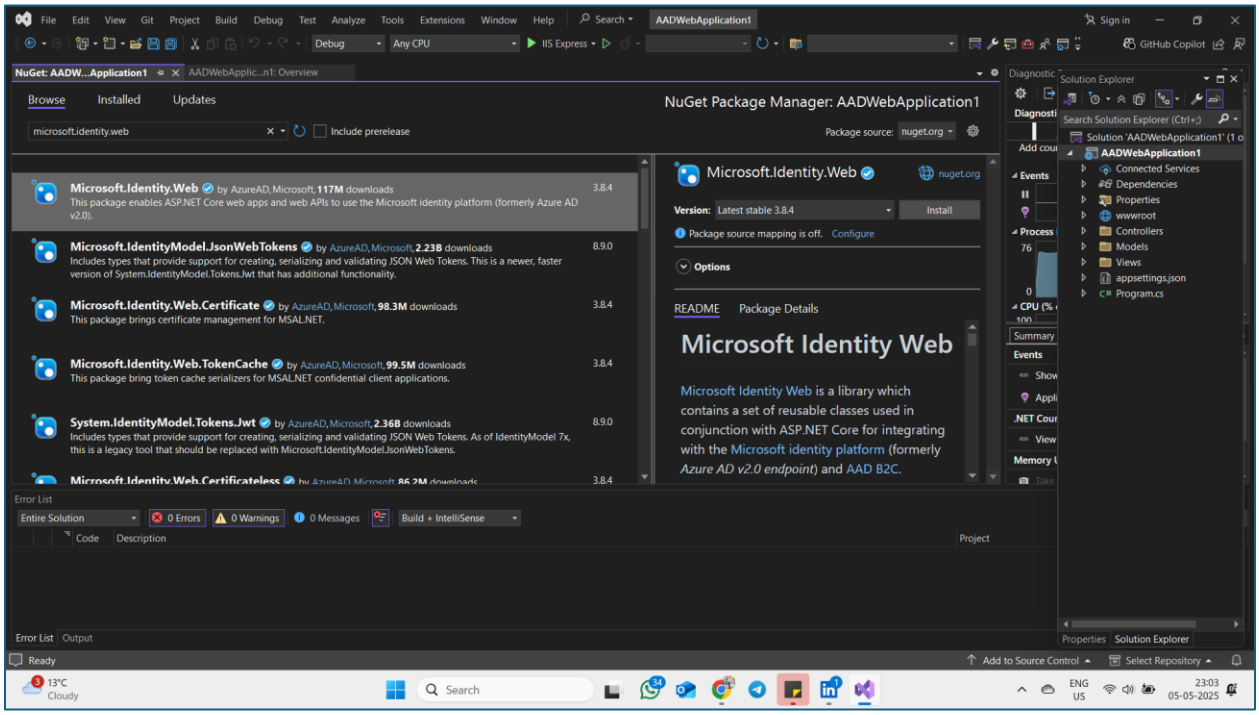


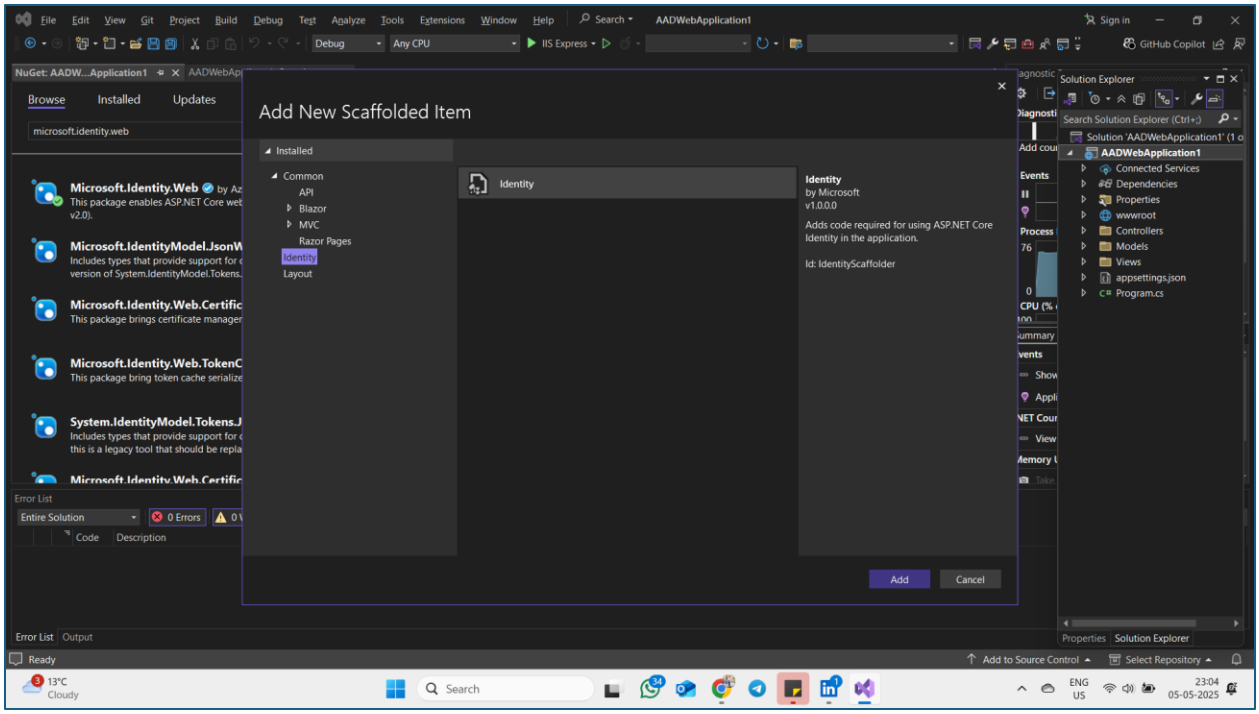

**4. Configure authentication and authorization settings for the application**

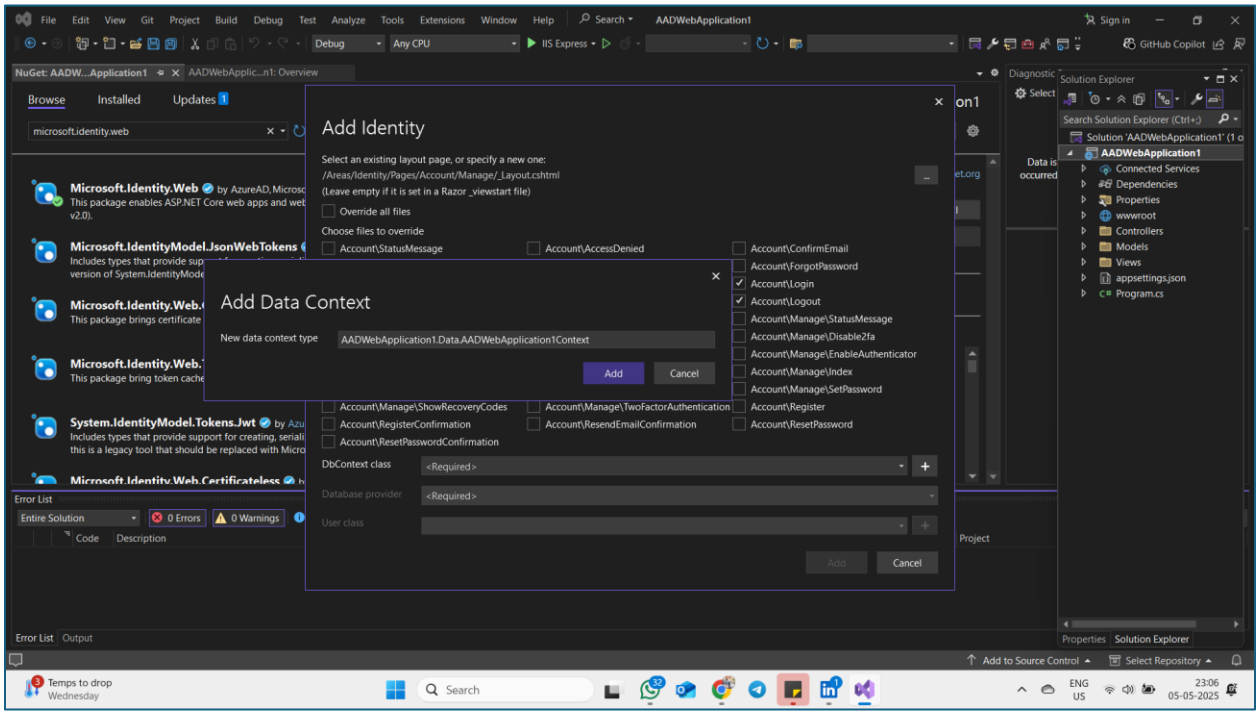
Download dependencies Nuget package- Microsoft Identity Web and Microsoft Identity Web UI

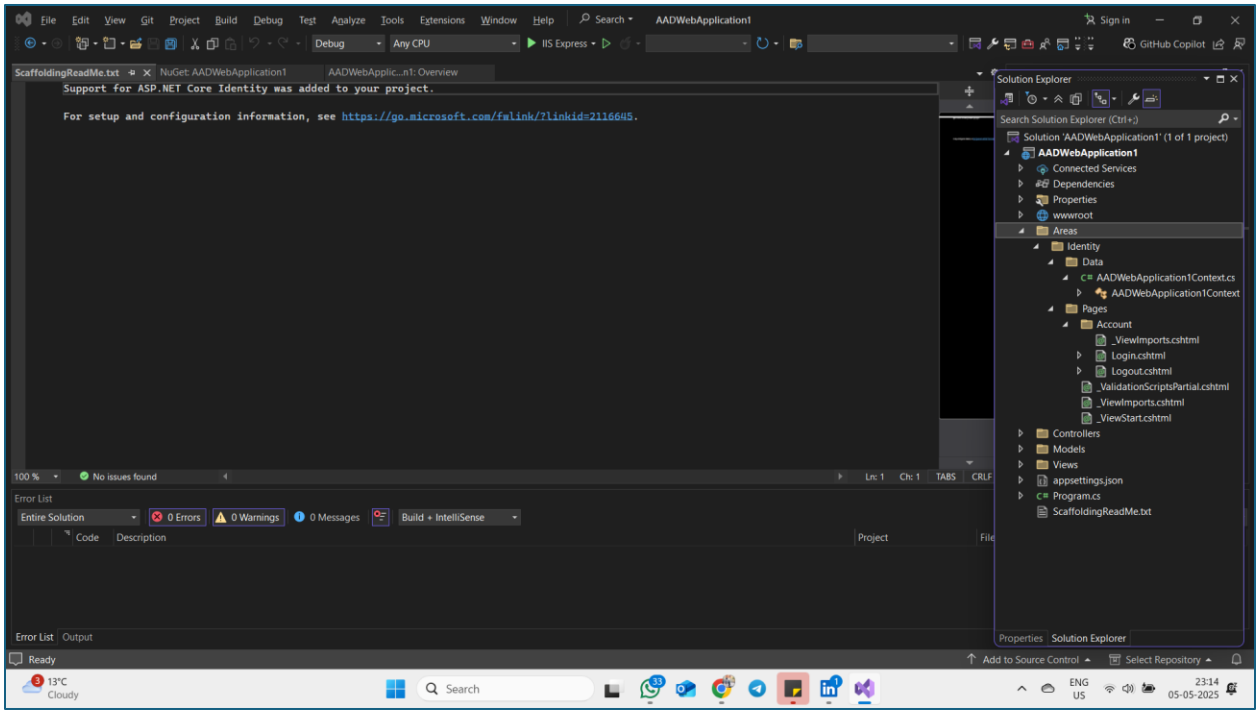



Add Scaffolded Items, Add Identity: Login and Logout

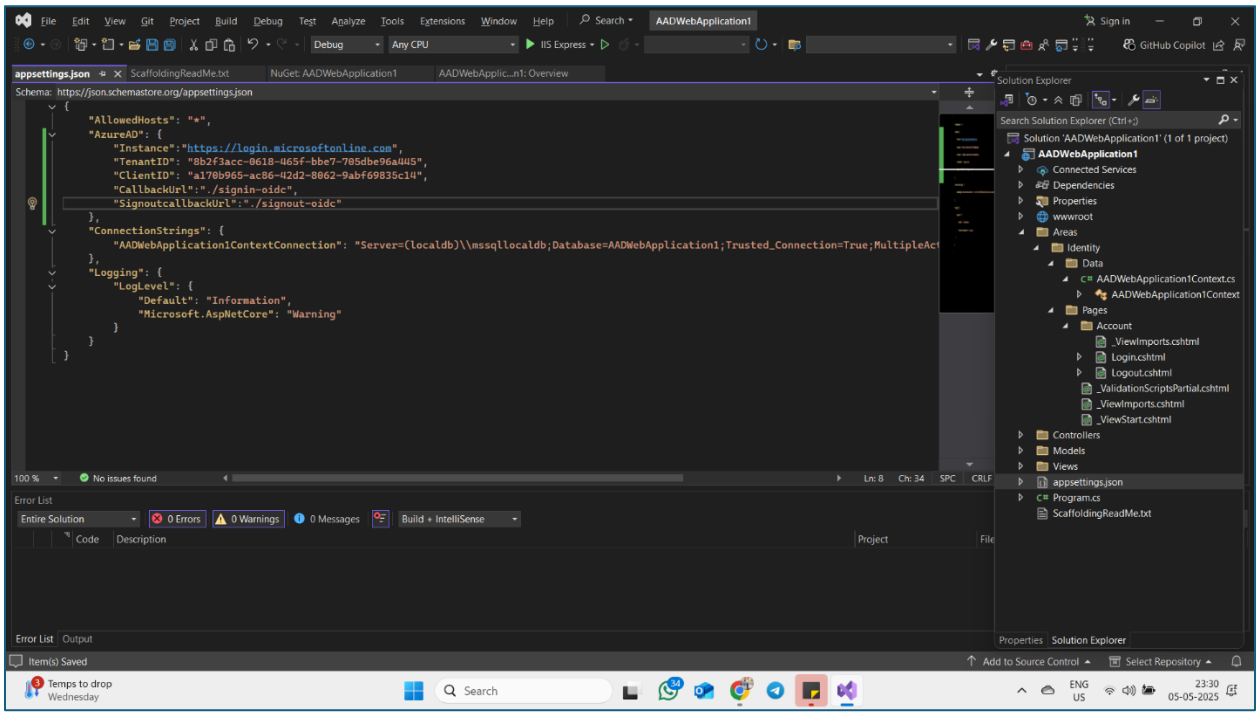

Add New Scaffolded Item
Installed
Common
API
Blazor
MVC
Razor Pages
Identity
Layout
Identity
by Microsoft
v1.0.0.0
Adds code required for using ASP.NET Core Identity in the application.
Id: IdentityScaffolder
Add
Cancel


Add Identity
Select an existing layout page, or specify a new one:
/Areas/Identity/Pages/Account/Manage/_Layout.cshtml
(Leave empty if it is set in a Razor _viewstart file)
Override all files
Choose files to override
Add Data Context
New data context type
AADWebApplication1.Data.AADWebApplication1Context
Add
Cancel
DbContext class
Database provider
User class




**5. Implement Azure AD authentication in a web application.**

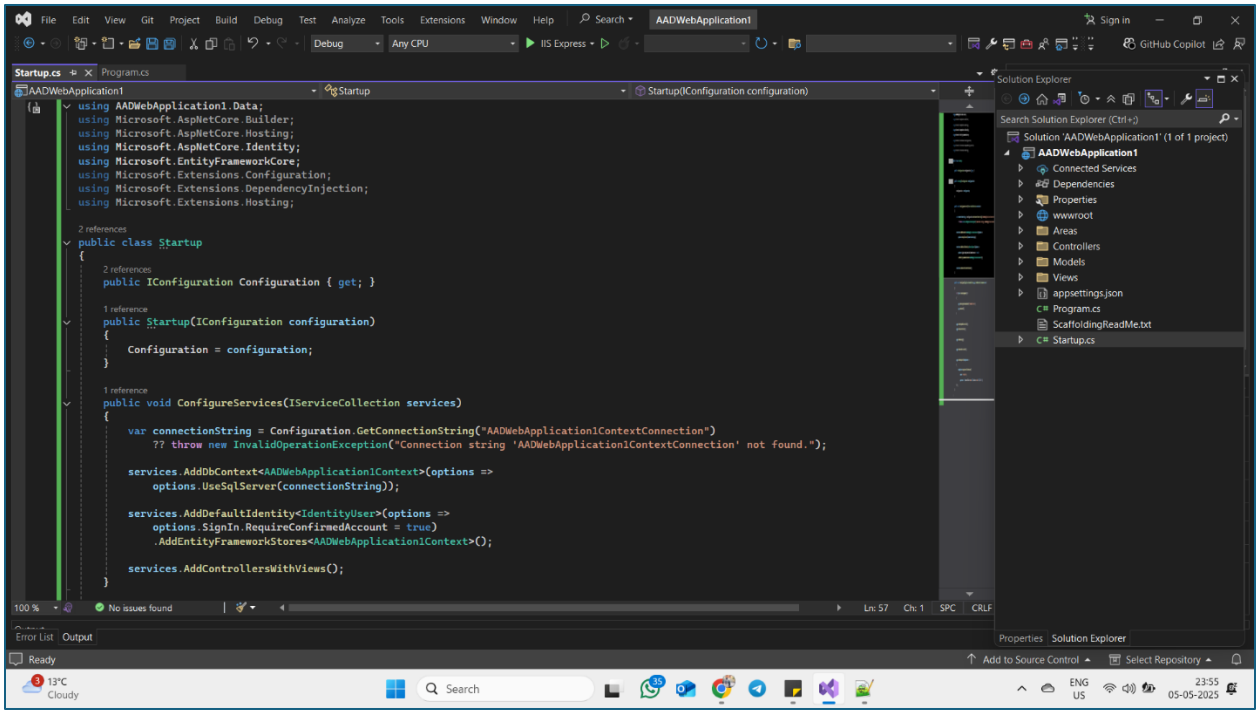
(Add AzureAD in appsettings.json to configure Azure App Registeration)

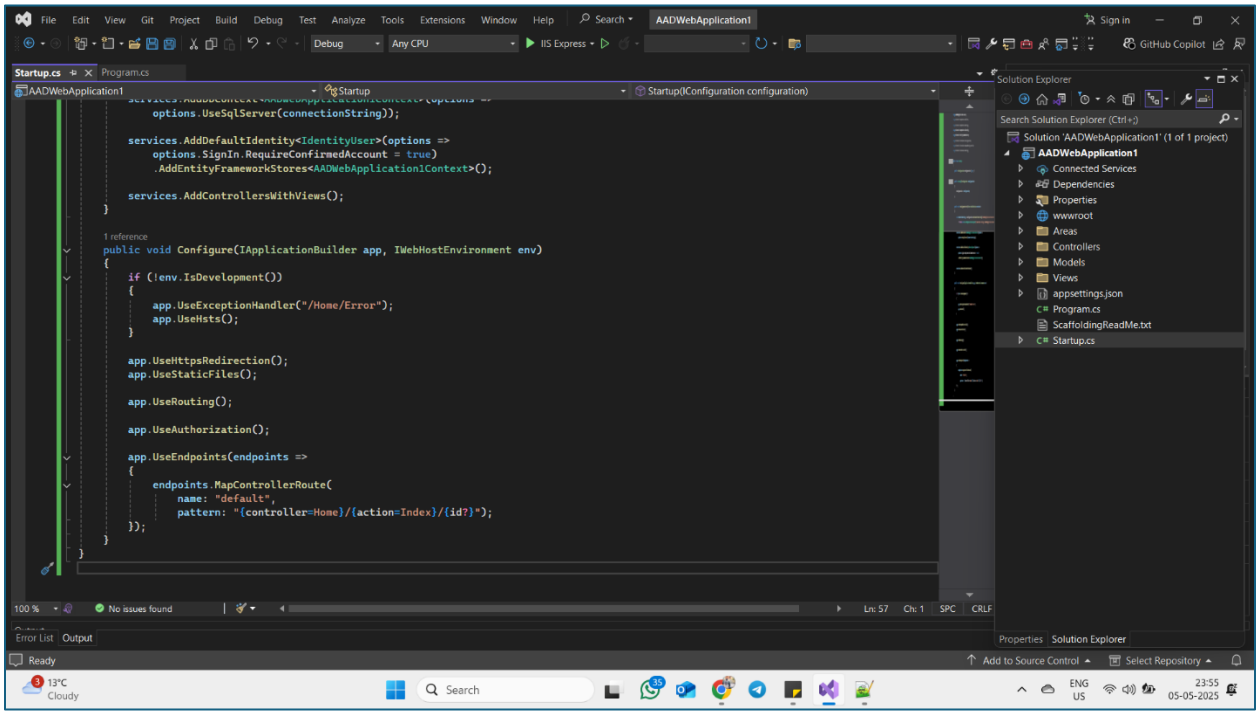


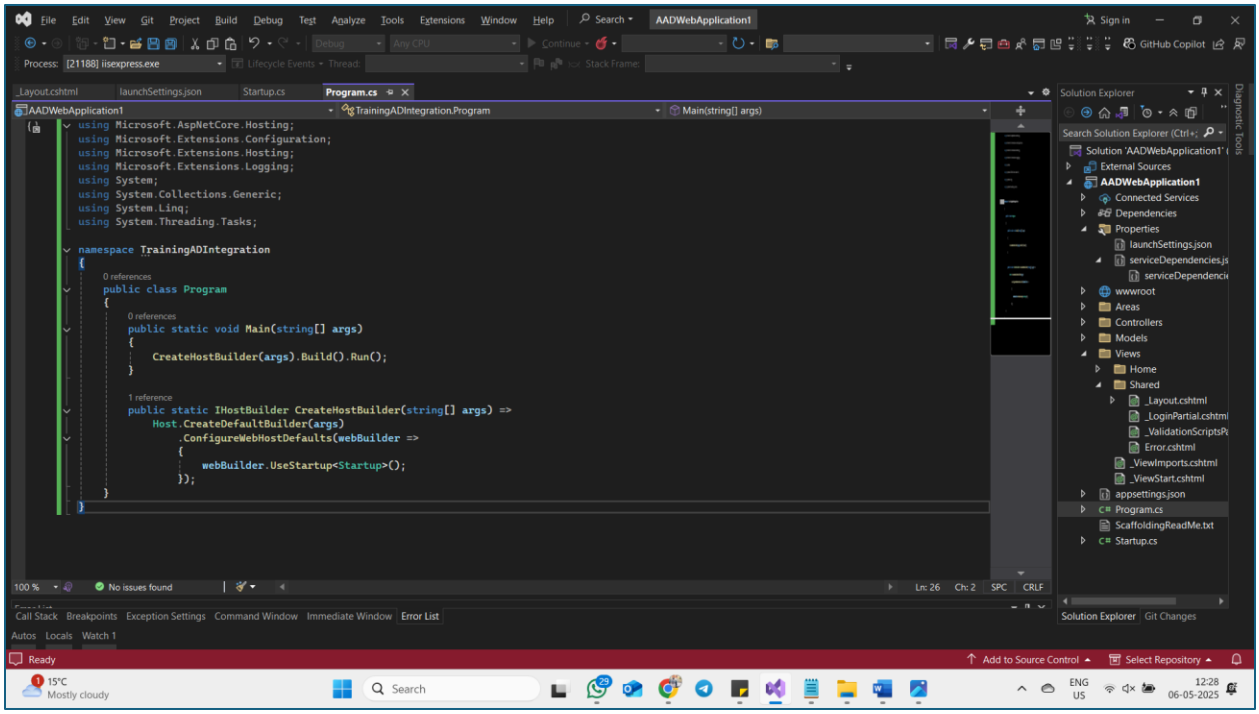

Modify startup.cs and program.cs

Program.cs sets things up and calls methods in Startup.cs.

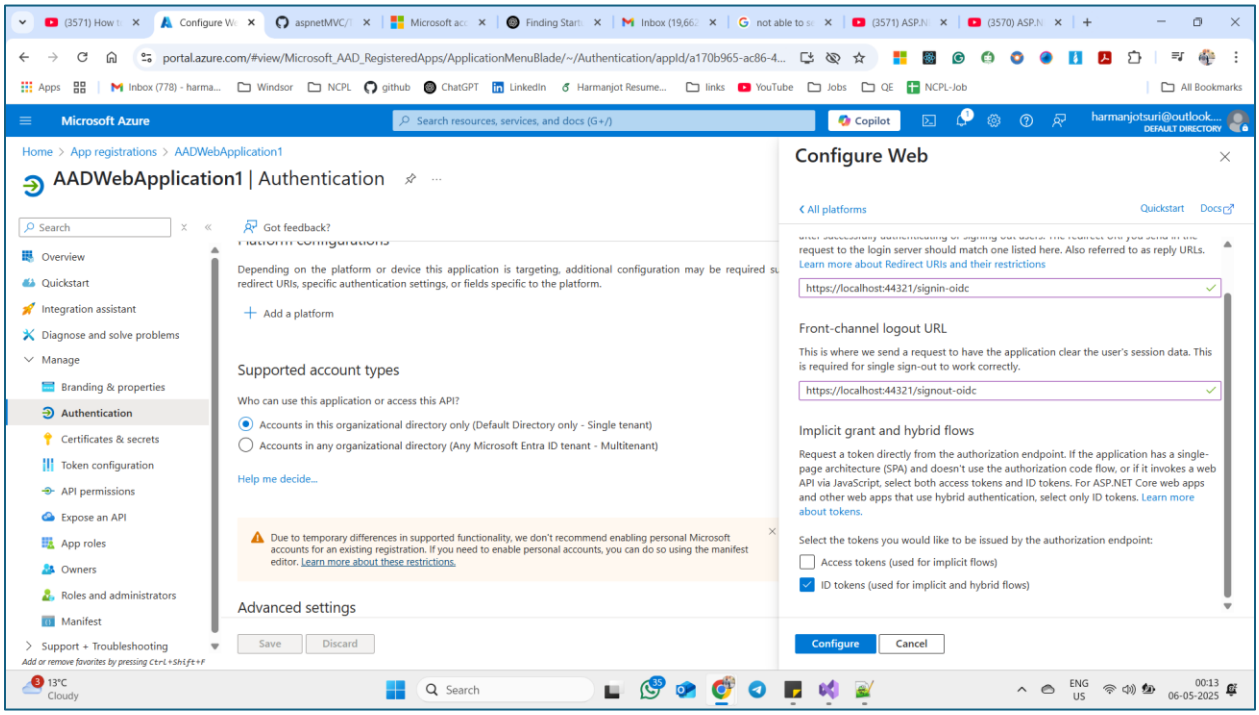
Startup.cs configures what the app can do and how it should respond to requests.

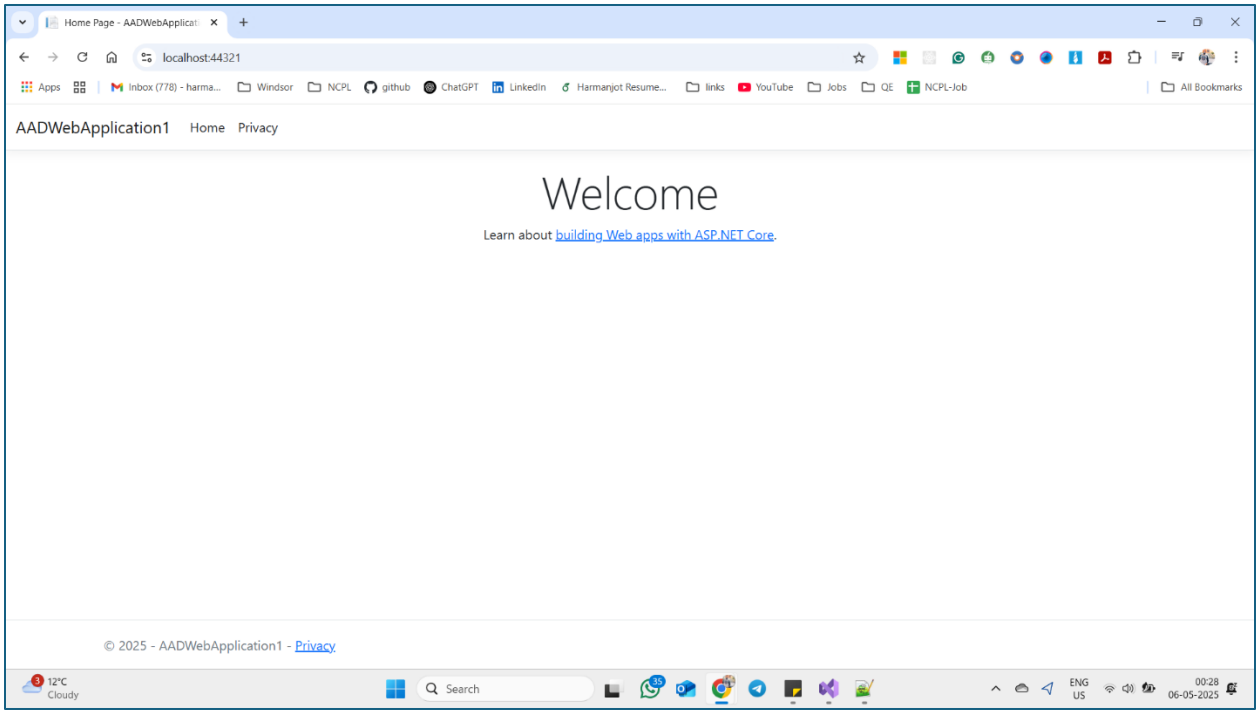

File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
AADWebApplication1
Debug
Any CPU
IIS Express
Sign in
GitHub Copilot
Startup.cs
Program.cs
AADWebApplication1
Startup
Startup(IConfiguration configuration)
using AADWebApplication1.Data;
using Microsoft.AspNetCore.Builder;
using Microsoft.AspNetCore.Hosting;
using Microsoft.AspNetCore.Identity;
using Microsoft.EntityFrameworkCore;
using Microsoft.Extensions.Configuration;
using Microsoft.Extensions.DependencyInjection;
using Microsoft.Extensions.Hosting;
2 references
public class Startup
{
2 references
public IConfiguration Configuration { get; }
1 reference
public Startup(IConfiguration configuration)
{
Configuration = configuration;
}
1 reference
public void ConfigureServices(IServiceCollection services)
{
var connectionString = Configuration.GetConnectionString("AADWebApplication1ContextConnection")
?? throw new InvalidOperationException("Connection string 'AADWebApplication1ContextConnection' not found.");
services.AddDbContext<AADWebApplication1Context>(options =>
options.UseSqlServer(connectionString));
services.AddDefaultIdentity<IdentityUser>(options =>
options.SignIn.RequireConfirmedAccount = true)
.AddEntityFrameworkStores<AADWebApplication1Context>();
services.AddControllersWithViews();
}
100 %
No issues found
Ln: 57
Ch: 1
SPC
CRLF
Error List
Output
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'AADWebApplication1' (1 of 1 project)
AADWebApplication1
Connected Services
Dependencies
Properties
wwwroot
Areas
Controllers
Models
Views
appsettings.json
Program.cs
ScaffoldingReadMe.txt
Startup.cs
Properties
Solution Explorer
Ready
Add to Source Control
Select Repository
13°C
Cloudy
Search
ENG
US
23:55
05-05-2025

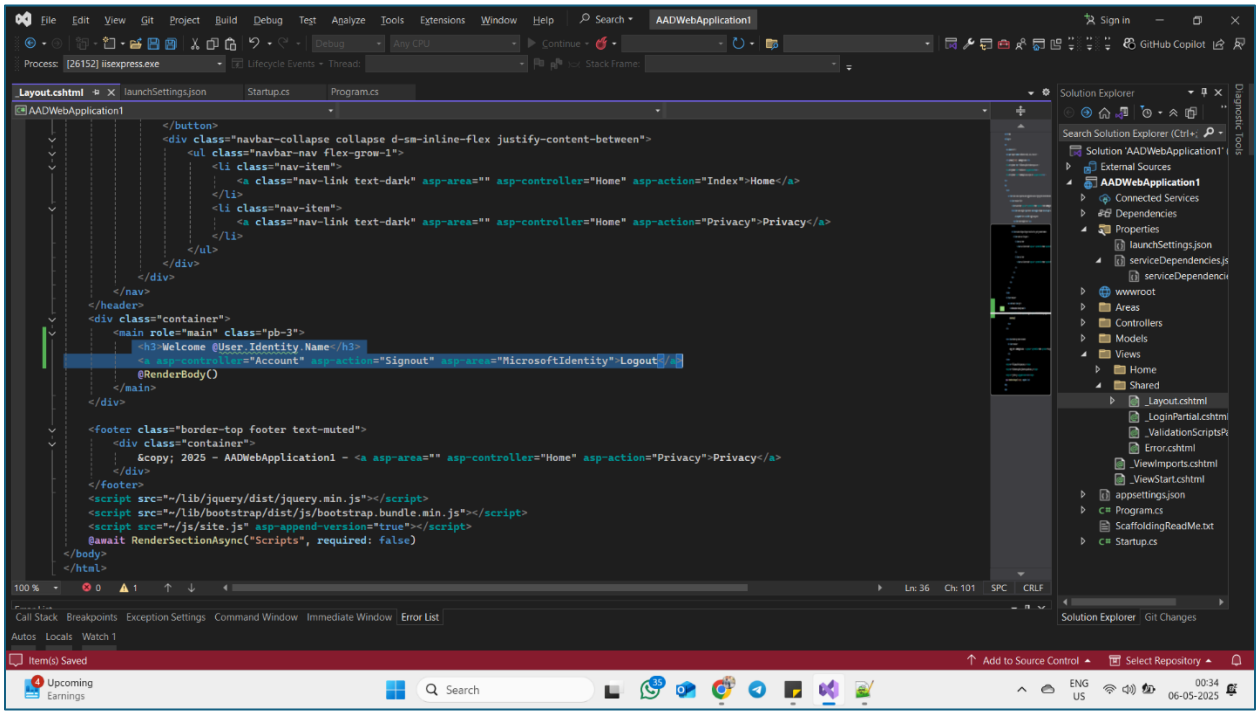

File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
AADWebApplication1
Debug
Any CPU
IIS Express
Sign in
GitHub Copilot
Startup.cs
Program.cs
AADWebApplication1
Startup
Startup(IConfiguration configuration)
options.UseSqlServer(connectionString));
services.AddDefaultIdentity<IdentityUser>(options =>
options.SignIn.RequireConfirmedAccount = true)
.AddEntityFrameworkStores<AADWebApplication1Context>();
services.AddControllersWithViews();
}
1 reference
public void Configure(IApplicationBuilder app, IWebHostEnvironment env)
{
if (!env.IsDevelopment())
{
app.UseExceptionHandler("/Home/Error");
app.UseHsts();
}
app.UseHttpsRedirection();
app.UseStaticFiles();
app.UseRouting();
app.UseAuthorization();
app.UseEndpoints(endpoints =>
{
endpoints.MapControllerRoute(
name: "default",
pattern: "{controller=Home}/{action=Index}/{id?}");
});
}
}
100 %
No issues found
Ln: 57
Ch: 1
SPC
CRLF
Error List
Output
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'AADWebApplication1' (1 of 1 project)
AADWebApplication1
Connected Services
Dependencies
Properties
wwwroot
Areas
Controllers
Models
Views
appsettings.json
Program.cs
ScaffoldingReadMe.txt
Startup.cs
Properties
Solution Explorer
Ready
Add to Source Control
Select Repository
13°C
Cloudy
Search
ENG
US
23:55
05-05-2025



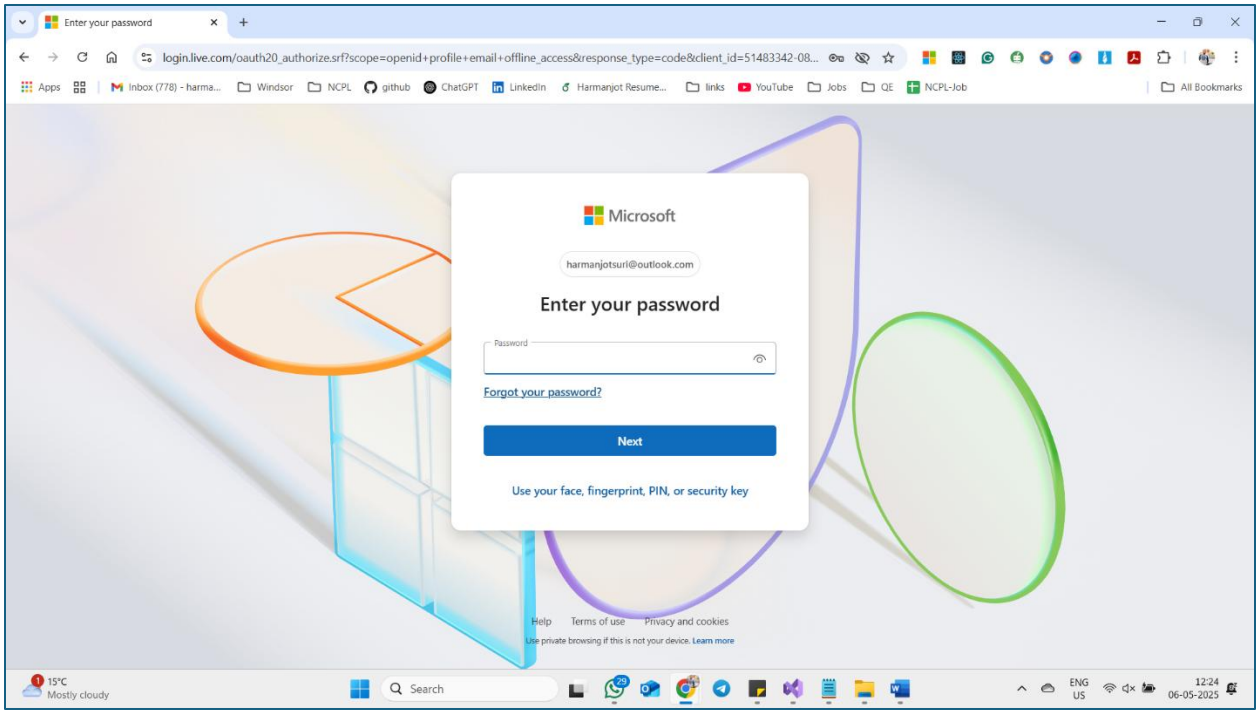

Open Azure app registration, authentication and add redirect url , front-channel logout url.

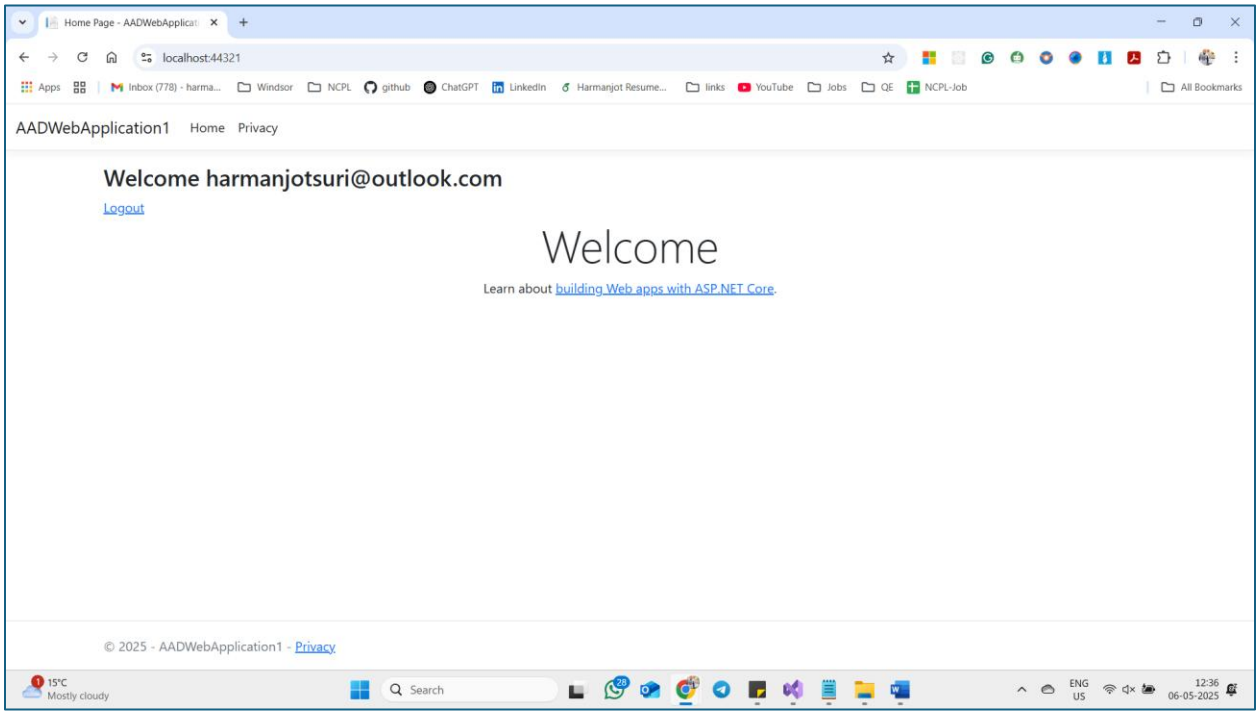


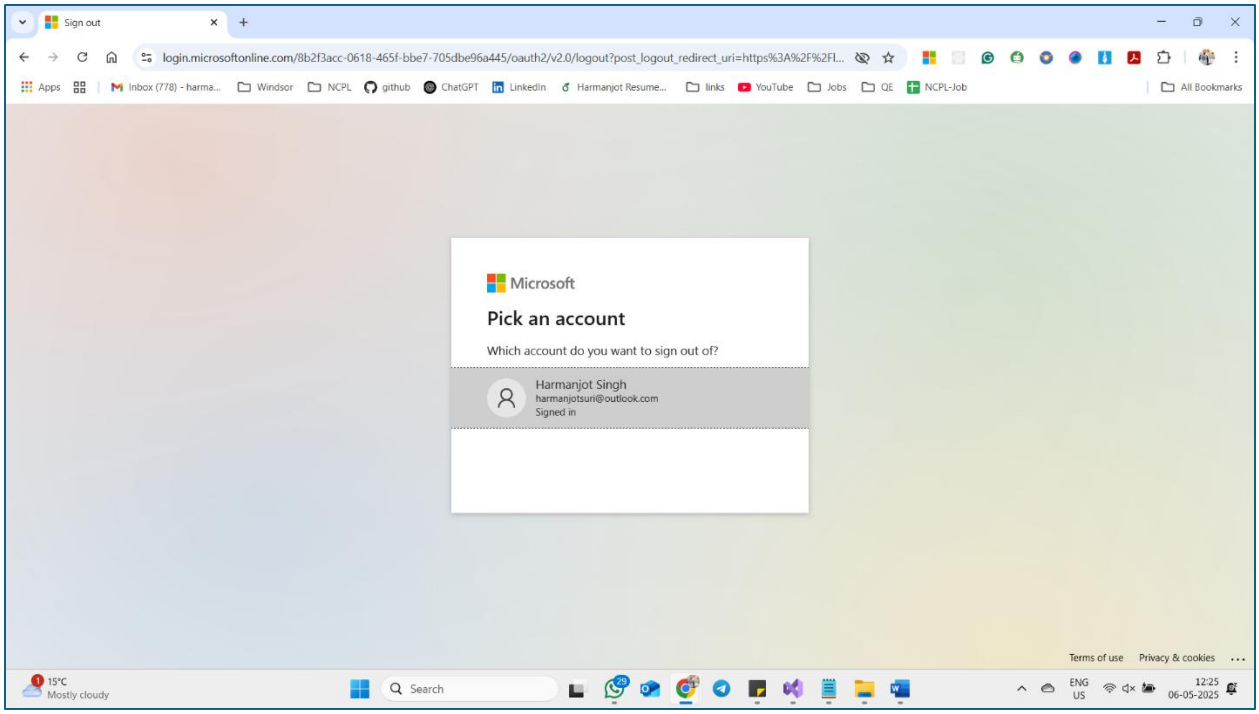



**6.Test authentication flow and access control using Azure AD users and groups.**


Enter your password
login.live.com/oauth20_authorize.srf?scope=openid+profile+email+offline_access&response_type=code&client_id=51483342-08...
Microsoft
harmanjotsuri@outlook.com
Enter your password
Password
Forgot your password?
Next
Use your face, fingerprint, PIN, or security key
Help
Terms of use
Privacy and cookies
Use private browsing if this is not your device. Learn more
15°C
Mostly cloudy
Search
ENG
US
12:24
06-05-2025


Home Page - AADWebApplicat
localhost:44321
AADWebApplication1
Home
Privacy
Welcome harmanjotsuri@outlook.com
Logout
Welcome
Learn about building Web apps with ASP.NET Core.
© 2025 - AADWebApplication1 - Privacy
15°C
Mostly cloudy
Search
ENG
US
12:36
06-05-2025




**Deliverables:**

azure ad tenant configuration.

registered application in azure ad.

authentication and authorization settings for the application.

web application with azure ad authentication implemented.

test results and any necessary troubleshooting documentation.

configuration for enabling sso (if applicable)