Link

<https://www.carlrippon.com/testing-ef-core-repositories-with-xunit-and-an-in-memory-db/>

NuGet Packages

Microsoft.EntityFrameworkCore.Design

Microsoft.EntityFrameworkCore.Tools

Microsoft.EntityFrameworkCore.InMemory

Repositories and Data Contexts

public class PersonDataContext : DbContext

{

public PersonDataContext() { }

public PersonDataContext(DbContextOptions<PersonDataContext> options) : base(options) { }

public DbSet<Person> People { get; set; }

public DbSet<EmailAddress> EmailAddresses { get; set; }

}

public interface IPersonRepository

{

ICollection<Person> GetAll();

Person Add(Person person);

}

public class PersonRepository : IPersonRepository

{

private PersonDataContext personDataContext;

public PersonRepository(PersonDataContext personDataContext)

{

this.personDataContext = personDataContext;

}

public ICollection<Person> GetAll()

{

return personDataContext.People.ToList();

}

public Person Add(Person person)

{

personDataContext.People.Add(person);

personDataContext.SaveChanges();

return person;

}

Testing – Setting up InMemory Database

private IPersonRepository GetInMemoryPersonRepository()

{

DbContextOptions<PersonDataContext> options;

var builder = new DbContextOptionsBuilder<PersonDataContext>();

builder.UseInMemoryDatabase();

options = builder.Options;

PersonDataContext personDataContext = new PersonDataContext(options);

personDataContext.Database.EnsureDeleted();

personDataContext.Database.EnsureCreated();

return new PersonRepository(personDataContext);

}

Testing – Tests

[Fact]

public void Add\_WhenHaveNoEmail()

{

**IPersonRepository sut = GetInMemoryPersonRepository();**

Person person = new Person()

{

PersonId = 1,

FirstName = "fred",

Surname = "Blogs"

};

Person savedPerson = sut.Add(person);

Assert.Equal(1, sut.GetAll().Count());

Assert.Equal("fred", savedPerson.FirstName);

Assert.Equal("Blogs", savedPerson.Surname);

Assert.Null(savedPerson.EmailAddresses);

}

[Fact]

public void Add\_WhenHaveSingleEmail()

{

IPersonRepository sut = GetInMemoryPersonRepository();

Person person = new Person()

{

PersonId = 1,

FirstName = "fred",

Surname = "Blogs",

EmailAddresses = new List<EmailAddress>()

{

new EmailAddress()

{

EmailAddressId = 1,

Email = "fred.blogs@testmail.com"

}

}

};

Person savedPerson = sut.Add(person);

Assert.Equal(1, sut.GetAll().Count());

Assert.Equal("fred", savedPerson.FirstName);

Assert.Equal("Blogs", savedPerson.Surname);

Assert.Equal(1, savedPerson.EmailAddresses.Count());

Assert.Equal("fred.blogs@testmail.com", savedPerson.EmailAddresses.ToList()[0].Email);

}