[Fact]

        public void Can\_Filter\_Products()

        {

            // Arrange

            // - create the mock repository

            Mock<IProductRepository> mock = new Mock<IProductRepository>();

            mock.Setup(m => m.Products).Returns((new Product[] {

                new Product {ProductID = 1, Name = "P1", Category = "Cat1"},

                new Product {ProductID = 2, Name = "P2", Category = "Cat2"},

                new Product {ProductID = 3, Name = "P3", Category = "Cat1"},

                new Product {ProductID = 4, Name = "P4", Category = "Cat2"},

                new Product {ProductID = 5, Name = "P5", Category = "Cat3"}

            }).AsQueryable<Product>());

            ProductController controller = new ProductController(mock.Object);

            controller.PageSize = 3;

            // Act

            ProductsListViewModel result =

                controller.List(null, 2).ViewData.Model as ProductsListViewModel;

            // Assert

            Product[] prodArray = result.Products.ToArray();

            Assert.True(prodArray.Length == 2);

            Assert.Equal("P4", prodArray[0].Name);

            Assert.Equal("P5", prodArray[1].Name);

        }

        [Fact]

        public void Generate\_Category\_Specific\_Product\_Count()

        {

            // Arrange

            Mock<IProductRepository> mock = new Mock<IProductRepository>();

            mock.Setup(m => m.Products).Returns((new Product[] {

                new Product {ProductID = 1, Name = "P1", Category = "Cat1"},

                new Product {ProductID = 2, Name = "P2", Category = "Cat2"},

                new Product {ProductID = 3, Name = "P3", Category = "Cat1"},

                new Product {ProductID = 4, Name = "P4", Category = "Cat2"},

                new Product {ProductID = 5, Name = "P5", Category = "Cat3"}

            }).AsQueryable<Product>());

            ProductController target = new ProductController(mock.Object);

            target.PageSize = 3;

            Func<ViewResult, ProductsListViewModel> GetModel = result =>

                result?.ViewData?.Model as ProductsListViewModel;

            // Action

            int? res1 = GetModel(target.List("Cat1"))?.PagingInfo.TotalItems;

            int? res2 = GetModel(target.List("Cat2"))?.PagingInfo.TotalItems;

            int? res3 = GetModel(target.List("Cat3"))?.PagingInfo.TotalItems;

            int? resAll = GetModel(target.List(null))?.PagingInfo.TotalItems;

            // Assert

            Assert.Equal(2, res1);

            Assert.Equal(2, res2);

            Assert.Equal(1, res3);

            Assert.Equal(5, resAll);