

SWINBURNE UNIVERSITY OF TECHNOLOGY

COS20007 OBJECT ORIENTED PROGRAMMING

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## 5.2P - Case Study - Iteration 3 - Bags

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```
1  using System;
2  using System.Collections.Generic;
3  using System.Linq;
4  using System.Text;
5  using System.Threading.Tasks;
6  using System.Xml.Linq;
7
8  namespace Iteration1
9  {
10     public class Bag : Item
11     {
12         private Inventory _inventory;
13
14         public Bag(string[] ids, string name, string desc) : base(ids, name, desc)
15         {
16             _inventory = new Inventory();
17         }
18
19         public GameObject Locate(string id)
20         {
21             if (AreYou(id))
22             {
23                 return this;
24             }
25             return _inventory.Fetch(id);
26         }
27
28
29         public override string FullDescription
30         {
31             get
32             {
33                 return $"In the {Name} you can see: {_inventory.ItemList}";
34             }
35         }
36
37         public Inventory Inventory
38         {
39             get
40             {
41                 return _inventory;
42             }
43         }
44     }
45 }
```

```
1 using Iteration1;
2 namespace BagUnitTest
3 {
4     public class BagTests
5     {
6         private Bag _TestBag;
7         private Item _TestSword;
8         private Item _TestBall;
9
10        [SetUp]
11        public void Setup()
12        {
13            _TestBag = new Bag(new string[] { "bag" }, "bag", "This is a bag");
14            _TestSword = new Item(new string[] { "sword" }, "bronze sword", "This is
↪ a bronze sword");
15            _TestBall = new Item(new string[] { "ball" }, "tennis ball", "This is a
↪ tennis ball");
16            _TestBag.Inventory.Put(_TestBall);
17            _TestBag.Inventory.Put(_TestSword);
18        }
19
20        [Test]
21        public void TestBagLocatesItems()
22        {
23            Assert.IsTrue(_TestBag.Inventory.HasItem("sword"));
24            Assert.IsTrue(_TestBag.Inventory.HasItem("ball"));
25            Assert.AreEqual(_TestBag.Locate("sword"), _TestSword);
26        }
27        [Test]
28        public void TestBagLocateItself()
29        {
30            Assert.AreEqual(_TestBag.Locate("bag"), _TestBag);
31        }
32        [Test]
33        public void TestBagLocatesNothing()
34        {
35            Assert.IsNull(_TestBag.Locate("bike"));
36        }
37        [Test]
38        public void TestBagFullDescription()
39        {
40            Assert.AreEqual(_TestBag.FullDescription, $"In the bag you can see:
↪ {_TestBag.Inventory.ItemList}");
41        }
42        [Test]
43        public void TestBagInBag()
44        {
45            Bag b1 = new Bag(new string[] { "b1" }, "b1", "This is b1");
46            Bag b2 = new Bag(new string[] { "b2" }, "b2", "This is b2");
47
48            b1.Inventory.Put(b2);
49
50            Assert.AreEqual(b1.Locate("b2"), b2);
```

```
51
52         b1.Inventory.Put(_TestSword);
53
54         Assert.AreEqual(b1.Locate("sword"), _TestSword);
55
56         b2.Inventory.Put(_TestBall);
57
58         Assert.IsFalse(b1.Inventory.HasItem("ball"));
59     }
60 }
61 }
```

