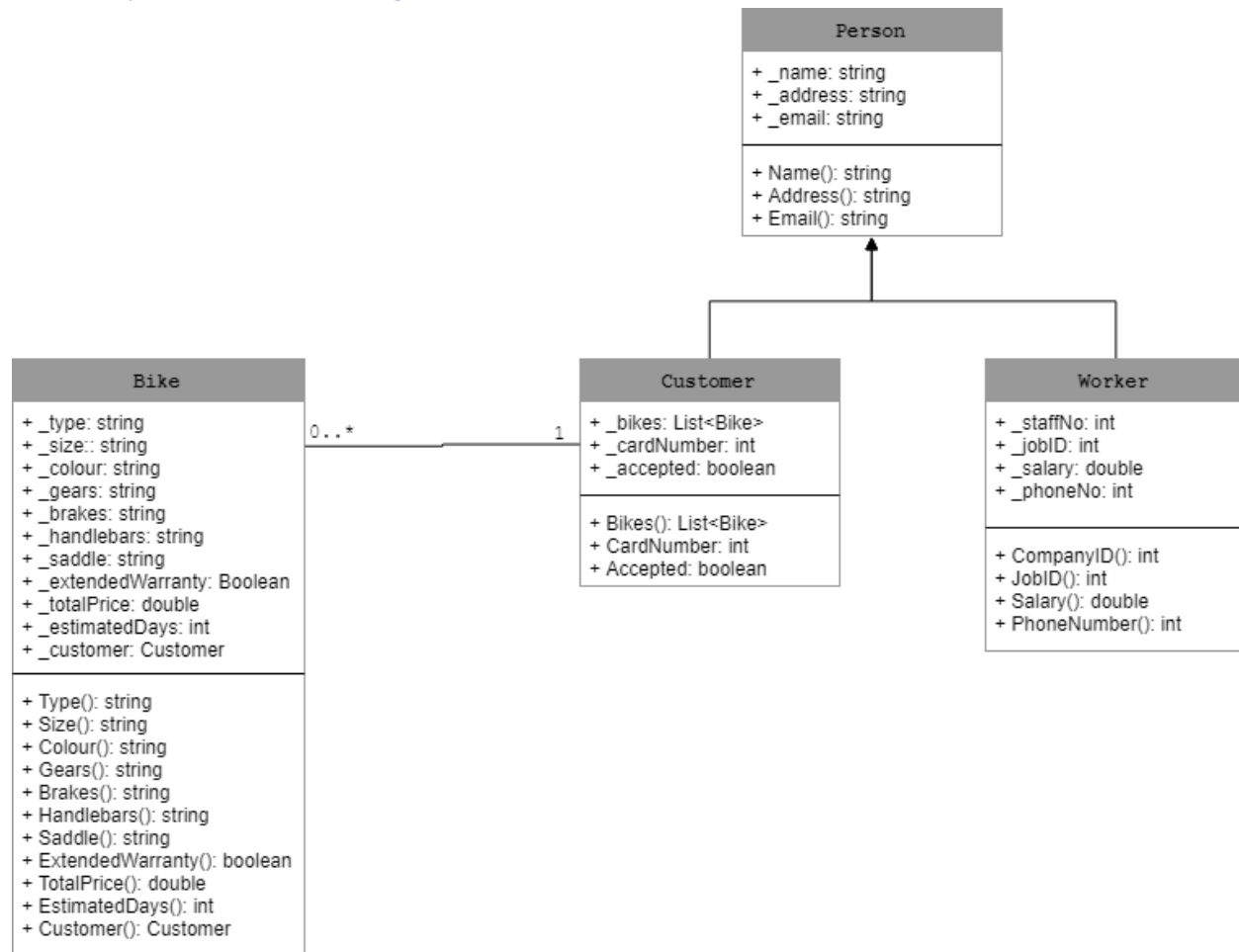


Software Engineering Methods Coursework

Part 2

a) UML Class diagram



b) Implementation and test units

Classes:

```

namespace SEM_cw2
{
    public class Person
    {
        private string _name;
        private string _address;
        private string _email;

        public string Name
        {
            get { return _name; }
        }
    }
}
  
```

```
        set { _name = value; }
    }
    public string Address
    {
        get { return _address; }
        set { _address = value; }
    }
    public string Email
    {
        get { return _address; }
        set { _address = value; }
    }
}
}
```

```
using System;
using System.Collections.Generic;

namespace SEM_cw2
{
    public class Customer : Person
    {
        private List<Bike> _bikes;
        private int _cardNumber;
        private Boolean _accepted;

        public List<Bike> Bikes
        {
            get { return _bikes; }
            set { _bikes = value; }
        }

        public int CardNumber
        {
            get { return _cardNumber; }
            set { _cardNumber = value; }
        }

        public Boolean Accepted
        {
            get { return _accepted; }
            set { _accepted = value; }
        }
    }
}
```

```
namespace SEM_cw2
{
    public class Worker : Person
    {
        private int _staffNo;
        private int _jobID;
        private double _salary;
        private int _phoneNo;
```

```
        public int StaffNumber
        {
            get { return _staffNo; }
            set { _staffNo = value; }
        }
        public int JobID
        {
            get { return _jobID; }
            set { _jobID = value; }
        }
        public double Salary
        {
            get { return _salary; }
            set { _salary = value; }
        }
        public int PhoneNumber
        {
            get { return _phoneNo; }
            set { _phoneNo = value; }
        }
    }
}
```

```
using System;

namespace SEM_cw2
{
    public class Bike
    {
        private int _id;
        private string _type;
        private string _wheels;
        private string _size;
        private string _colour;
        private string _gears;
        private string _brakes;
        private string _handlebars;
        private string _saddle;

        private Boolean _extendedWarranty;

        private double _totalPrice;

        private double _estimatedDays;

        private Customer _customer;

        public int ID
        {
            get { return _id; }
            set { _id = value; }
        }
        public string Type
        {
            get { return _type; }
            set
```

```
{
    if (value == "mountain" || value == "road")
    {
        _type = value;
    }
    else
        throw new ArgumentException("type is wrong");
}
}
public string Wheels
{
    get { return _wheels; }
    set
    {
        if (value == "small" || value == "large")
        {
            _wheels = value;
        }
        else
            throw new ArgumentException("wheel is wrong");
    }
}
public string Size
{
    get { return _size; }
    set
    {
        if (value == "small" || value == "medium" || value == "large")
        {
            _size = value;
        }
        else
            throw new ArgumentException("type is wrong");
    }
}
public string Colour
{
    get { return _colour; }
    set { _colour = value; }
}
public string Gears
{
    get { return _gears; }
    set
    {
        if (value == "Type A" || value == "Type B")
        {
            _gears = value;
        }
        else
            throw new ArgumentException("gear is wrong");
    }
}
public string Brakes
{
    get { return _brakes; }
    set
    {
```

```
        if (value == "Type A" || value == "Type B")
        {
            _brakes = value;
        }
        else
            throw new ArgumentException("brakes is wrong");
    }
}
public string Handlebars
{
    get { return _handlebars; }
    set
    {
        if (value == "Type A" || value == "Type B")
        {
            _handlebars = value;
        }
        else
            throw new ArgumentException("handlebars are wrong");
    }
}
public string Saddle
{
    get { return _saddle; }
    set
    {
        if (value == "Type A" || value == "Type B")
        {
            _saddle = value;
        }
        else
            throw new ArgumentException("saddle is wrong");
    }
}
public Boolean ExtendedWarranty
{
    get { return _extendedWarranty; }
    set { _extendedWarranty = value; }
}
public double TotalPrice
{
    get { return _totalPrice; }
    set { _totalPrice = value; }
}
public double EstimatedDays
{
    get { return _estimatedDays; }
    set { _estimatedDays = value; }
}
public Customer Customer
{
    get { return _customer; }
    set { _customer = value; }
}
}
}
```

Test unit for Bike class:

```
using System;
using Microsoft.VisualStudio.TestTools.UnitTesting;
using SEM_cw2;

namespace TestingClasses
{
    [TestClass]
    public class UnitTest1
    {
        //the bike object to test
        Bike bike = new Bike();

        [TestMethod]
        [ExpectedException(typeof(ArgumentException))]
        public void typeTest()
        {
            bike.Type = "hi";
        }

        [TestMethod]
        public void typeTest2()
        {
            bike.Type = "small";
        }

        [TestMethod]
        [ExpectedException(typeof(ArgumentException))]
        public void wheelTest()
        {
            bike.Wheels = "asdasd";
        }

        [TestMethod]
        [ExpectedException(typeof(ArgumentException))]
        public void sizeTest()
        {
            bike.Wheels = "asdsad";
        }
    }
}
```

c) User Interface

MainWindow

Bike details

Select type:

Wheels:

Size:

Colour:

Gears: Brakes:

Handlebars: Saddle:

☒ Extended warranty

Payment

Card number:

Left to pay: £ 468

Order_Details

Order description

Bike ID: 1
Type: road
Wheels: large
Size: medium
Colour: blue
Gears: Type A
Brakes: Type B
Handlebars: Type B
Saddle: Type A
Extended warranty: True

Total Price
£ 520
+ £100 for building and testing
(included in total price)

Estimated completion time
3.5 days

Receipt

Order description

Bike ID: 1
Type: road
Wheels: large
Size: medium
Colour: blue
Gears: Type A
Brakes: Type B
Handlebars: Type B
Saddle: Type A
Extended warranty: True

Total price: £ 520
Left to pay: £ 468
+ £100 for building and testing
(included in total price)

Estimated completion time
3.5

Customer_Details

Customer details

Existing customer:

Name:

Address: Postcode:

Email: