# MOCK ASSESSMENT 3 - UNIT 4: OOP, Abstract Classes

Core concepts: Classes, Class methods

**OVERVIEW**
Create a C# console application that utilizes OOP concepts..
Your completed application should include classes and methods that perform the required actions and follow proper naming conventions.

**BUILD SPECIFICATIONS**
Pay special attention to the items in bold. **You must use these in your program exactly, including capitalization**, in order to get the points.

For this challenge, you will need to create a new C# Project named **MockAssessment3**. All classes must be created in the **namespace MockAssessment3**.

In this project you will create **Villager** and **Town** classes to see if the Villagers can produce enough food to make it through the winter. **Villager** will be abstract and will have 2 children: **Slacker** and **Farmer.**

- **class Town**
    - Properties
        - **public List<Villager> Villagers**
    - Constructor
        - Add 1 Farmer and 3 Slackers to the Villagers List
    - Methods
        - **public Harvest()** - returns an **int**
            - Find the total of all the Villagers' **Farm()** methods
            - Return that total
        - **public CalcFoodConsumption()** - returns an **int**
            - Find the total of all the Villagers' **Hunger** properties
            - Return that total
        - **public SurviveTheWinter()** - returns a **bool**
            - Call and store the result of the **Harvest()** method
            - Call and store the result of the **CalcFoodConsumption()** method
            - Return true if the value from CalcFoodConsumption is less than or equal to Harvest.
            - Return false if the value from CalcFoodConsumption is greater than Harvest.
- **abstract class Villager**
    - Properties

- - - **public Int Hunger**
  - ○ Methods
    - - **abstract Farm()** - returns an **int**
- **class Farmer** which will be a child of **Villager**
  - ○ Constructor
    - - Set **Hunger** to **1**
  - ○ Methods
    - - Override **Farm()** return **2**
- **class Slacker** which will be a child of **Villager**
  - ○ Constructor
    - - Set **Hunger** to **3**
  - ○ Methods
    - - Override **Farm()** return **0**

## TESTING

1. Download the unit test project from Github
   https://github.com/TommyWaalkes/MockAssessmentsCSharp
2. There will be a few warnings, here's how you fix them:
   a. Right click on your solution in your solution explorer
   b. In the pop up menu select **"Restore NuGet Packages"**
   c. After that's done running, in the top menu select **Build → Rebuild Solution**
3. Copy paste your .CS files into the test project. Make sure all namespaces match.
   For example copy your **Farmer.cs** into **Farmer.cs** in the test project.
4. Then go to Test ---> Windows ---> Test Explorer
5. In the Test Explorer, hit run all and see how you did!