**Homework T2 Submission Document**

You can work individually or in groups of 2.

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**Test Derivation for *addEmp(e:Employee)***

We will use the category-partition method to derive a set of test cases for this method.

1. **Identify what criteria must hold true for each test case to pass**

The side-effects of this method are:

1. **Identify inputs/parameters for each feature under test.**
2. **Identify the categories/characteristics for each input/parameter.**
3. **Partition categories into choices**
4. **Number of tests before constraints added**
5. **TSL Input**

The *TSL* input file is shown below.

Justification for the constraints:

|  |  |
| --- | --- |
| **Constraint** | **Justification** |
|  |  |
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1. **TSL Output – Test Frames**

The \_\_ test frames are show below:

1. **Test Cases**

The test cases we derived are shown below.

[Remove unused columns]

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Test** | **[Put name of characteristic 1 here]** | **[Put name of characteristic 2 here]** | ***Etc.*** |  |  |  |  |  |
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**Test Derivation for *removeEmployee(pos:int):Employee***

We will use the category-partition method to derive a set of test cases for this method.

1. **Identify what criteria must hold true for each test case to pass**

The side-effects of this method are:

1. **Identify inputs/parameters for each feature under test.**
2. **Identify the categories/characteristics for each input/parameter.**
3. **Partition categories into choices**
4. **Number of tests before constraints added**
5. **TSL Input**

The *TSL* input file is shown below.

Justification for the constraints:

|  |  |
| --- | --- |
| **Constraint** | **Justification** |
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1. **TSL Output – Test Frames**

The \_\_ test frames are show below:

1. **Test Cases**

The test cases we derived are shown below.

[Remove unused columns]

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Test** | **[Put name of characteristic 1 here]** | **[Put name of characteristic 2 here]** | ***Etc.*** |  |  |  |  |  |
| 1 |  |  |  |  |  |  |  |  |
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Following the 6 Steps of the CPM:

1. The feature being tested is the AddEmp method, which can be abstractly thought of as the algorithmic feature responsible for “adding an Employee object to the Store”.
2. The input parameters that this algorithm requires are the Employee object which is trying to be added to the Store, the array used to contain Employees, and the numEmps variable representing the number of Employees that are “currently in the Store”. For each input-parameter, we will describe the **characteristics**. So, the most simple input is the numEmps variable. It is an integer so it ranges from -232 to 232 , but we will only use a subset of those values, namely, values from [0, 20]. In addition, another characteristic of the integer data type is that it does not contain fractional parts, so it is a whole number. So, our range is from zero to twenty inclusive and is discrete not continuous. Next we can talk about the data structure holding the Employees, the array. It is an array so that means it’s size is immutable. It’s size will always be 20. The array is an Object so it is a reference type. In addition, the array is of type Employee. The array contains data of type Object, so it contains references, not primitive data. It contains references to Employee objects. Something interesting to note is that the array is sensitive because it’s size cannot change. The array can get full. The array can only have indices from 0 to 19. Any negative index will not work. The array will have indices of interest: some indices will point to elements which are references to Employee objects. Some indices will point to elements that contain references to null objects. Also, the interesting indices are subject to change. If I add an emp, then the interesting indices contain one more element, namely, one larger than the previously last element. Since we’ve touched base on the array, we can talk about the Employee data type which is also an input parameter. The Employee data type is a subclass of Object. It is a reference type which means that any variable that I make for this Employee object is a reference to the Employee’s references to primitive data type. AKA, the Employee object is a reference to a group of primitive data types and other reference types. The Employee object has attributes which means that it has state. The employee’s state can vary from instant to instant. The state of the employee is initialized upon construction [instantiation] of the Employee object. The employee is not an immutable object because it has setters and behaviors that can alter its state. There are no conditions that prohibit when these behaviors/actions can be performed so the state of an employee is subject to change at any time. So, the state of the employee depends on the behaviors that it performs. The state of the employee is also subject to change depending on actions that the store class performs on the Employee object that can change it’s state. The state of the employee is changed when the newWeek method is called. The hours array is reset to all zeros. The state of the employee is changed when the mergeEmployee method is called because the array’s values are altered because they are combined with another employee’s hours.