**Understanding the Code:**

Our objective is to compare the Neocortex API ScalarEncoder to the Numenta ScalarEncoder and give recommendations on how buckets should be added to the Neocortex API ScalarEncoder.

So I began comparing the Nupic (Numenta) codes to the Neocortex API code. As a result, we can observe which areas of the code are missing and which changes need to be made to the code.

We'll classify and complete the assignment.

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| Nupic (Numenta) Encoders code | Neocortex API Encoders code |
| 1. Packages are imported from Nupic. 2. Declaration of the Radius and Resolution default values as 0. 3. Initialization of the terms (Self, w, Minval, Maxval, n, periodic, name resolution).      1. Logics for padding, w and Halfwidth are declared. 2. If case for the Minval and Maxval are initialized and implemented. 3. Initialization of the encoder as InitEncoder class. 4. Name is conditioned with if case and the logics are declared. 5. The variables TopDownvalue, Top-down mapping, bucket value. 6. In order to checks for mistakes in encoder settings inti encoder is initialized. 7. The logics for periodic are implemented.   To Return the bit offset of the first bit to be set in the encoder output. For periodic encoders, this can be a negative number when the encoded output wraps around.   1. Declaration of GetFirstBit for the above-mentioned details. 2. Initiation for periodic encoders, the bucket index is the index of the centre bit and for non-periodic encoders, the bucket index is the index of the left bit. | 1. Packages are using Neocortex Utilities 2. Declaration of Radius and Resolution is missing. 3. Missing of the terms Initiation of the (Self, w, Minval, Maxval, n, periodic, name resolution).   And initiating the new classes as Is delta, scalar encoder.   1. Logics for padding, w and Halfwidth are declared. 2. If case for the Minval and Maxval are initialized and implemented. 3. Initialization of the encoder as InitEncoder class. 4. Name is conditioned with if case and the logics are declared. 5. The variables TopDownvalue, Top-down mapping, bucket value are missing. 6. In order to checks for mistakes in encoder settings inti encoder is initialized. 7. The logics for periodic are missing.   To Return the bit offset of the first bit to be set in the encoder output. For periodic encoders, this can be a negative number when the encoded output wraps around.   1. Declaration of GetFirstBit for the above mentioned details but it is in protected class so that it need to analysis. 2. Initiation for periodic encoders, the bucket index is the index of the centre bit for non-periodic encoders, the bucket index is the index of the left bit. |