**Parameters(Params) Calculation**

The parameters (params) in each layer of proposed model are calculated based on the weights and biases that the model learns during training. Here’s a detailed explanation of how these parameters are computed for each layer in proposed model:

1. **Conv1D Layers**:
   * **Layer 1: Conv1D(64, 3)**
     + Number of parameters = (number of filters \* filter size \* number of input channels) + number of filters
     + Here, number of filters = 64, filter size = 3, number of input channels = 1
     + Parameters = (64 \* 3 \* 1) + 64 = 192 + 64 = 256
   * **Layer 2: Conv1D(128, 3)**
     + Number of parameters = (128 \* 3 \* 64) + 128 = 24,576 + 128 = 24,704
   * **Layer 3: Conv1D(256, 3)**
     + Number of parameters = (256 \* 3 \* 128) + 256 = 98,304 + 256 = 98,560
   * **Layer 4: Conv1D(512, 3)**
     + Number of parameters = (512 \* 3 \* 256) + 512 = 393,216 + 512 = 393,728
2. **Attention Layer**:
   * The attention layer parameters include the weights W, biases b, and additional weights u.
     + Number of parameters = (input channels \* input channels) + input channels + input channels
     + In this case, input channels = 512 (output from the previous Conv1D layer)
     + Parameters = (512 \* 512) + 512 + 512 = 262,144 + 512 + 512 = 263,168
3. **Dense Layer**:
   * **Dense(128)**:
     + Number of parameters = (number of input units \* number of output units) + number of output units
     + Here, number of input units = 512 (flattened attention output), number of output units = 128
     + Parameters = (512 \* 128) + 128 = 65,536 + 128 = 65,664
4. **Output Layer**:
   * **Dense(num\_classes)**:
     + Number of parameters = (number of input units \* number of output units) + number of output units
     + Here, number of input units = 128 (output from the previous dense layer), number of output units = 2 (number of classes)
     + Parameters = (128 \* 2) + 2 = 256 + 2 = 258

To summarize:

* Conv1D Layer 1: 256 params
* Conv1D Layer 2: 24,704 params
* Conv1D Layer 3: 98,560 params
* Conv1D Layer 4: 393,728 params
* Attention Layer: 263,168 params
* Dense Layer: 65,664 params
* Output Layer: 258 params

Each parameter represents a weight or bias that the model learns during training. These parameters are adjusted during the backpropagation process to minimize the loss function and improve the model’s performance.