With Random Weight Initialization:

1. Code Changes:

- Added a function _initialize_weights() to the model_architecture() class that applies random weight initialization. Also, init() function from torch.nn library must be imported:

```
from torch.nn import init
```

```
def _initialize_weights(self, init_type):
        # Loop through each layer and initialize the weights
        for m in self.model:
            if isinstance(m, nn.Linear):
                init.xavier_uniform_(m.weight)  # Xavier
initialization
```

2. Output:

Training and Validation Loss   Training and Validation Accuracy