Draft:

1. **Dataset Preprocessing:**
    - **Image Classification Dataset:**
        - Label images according to their respective categories.
        - Normalise image data, apply augmentations (like flips, rotations, etc.), and split the dataset into training, validation, and test sets.
    - **Pathfinding Dataset:**
        - This can be either grid-based images or graphical representations where the model predicts paths.Preprocess similarly with normalisation and augmentations as necessary.
2. **Model Architectures:**
    - **CNN (Convolutional Neural Networks):**
        - Use a simple CNN with multiple convolution(twist) layers followed by pooling, dense layers, and a final softmax activation for classification.
        - For pathfinding, adapt the CNN for predicting the coordinates or actions involved in finding paths within grids.
    - **U-Net:**
        - Particularly useful for tasks involving segmentation, which can be beneficial for pathfinding problems. Identification of path regions.
        - U-Net can also be adapted for image classification by modifying the output layer to a classification layer.
3. **Model Training and Testing:**
    - **Train CNN:** For both image classification and pathfinding, train the CNN model and evaluate its performance on validation data.
    - **Train U-Net:** Similarly, train the U-Net for both image classification and pathfinding, and also for modifying the output layers.
    - **Additional Architectures:** Consider trying other modern architectures like ResNet, EfficientNet for classification, or DQN for pathfinding.
4. **Evaluation basis:**
    - For both tasks, evaluate the models using:
        - **Accuracy:** The percentage predicted instances.
        - **F1-Score:** providing a balance between both.
        - **Confusion Matrices:** To provide insights into the classification errors made by the models.