The BirdSet pipeline tutorial which is given by the link provides a comprehensive guide on how to use the BirdSet dataset for bird sound classification & it covers the following steps:

https://github.com/DBD-research-group/BirdSet/blob/main/notebooks/tutorials/birdset-pipeline_tutorial.ipynb

1. **Dataset Preparation**: Downloading and preprocessing the BirdSet dataset.

2. **Feature Extraction**: Using audio processing libraries to extract features like Mel-spectrograms.

3. **Model Training**: Implementing machine learning models using libraries such as TensorFlow or PyTorch.

4. **Evaluation**: Assessing the model's performance using appropriate metrics.

5. **Inference**: Using the trained model to classify new bird sound recordings.

Suggested workflow:

Step	Description
1. Dataset Preparation	Download and preprocess the BirdSet dataset. Resample, normalize, and split data into training, validation, and test sets.
2. Feature Extraction	Extract features such as Mel-spectrograms, MFCCs, or chromograms using audio processing libraries like Librosa. Save features for quick access.
3. Model Development	Choose a generative model (VAE, GAN, DDPM). Implement necessary networks (encoder/decoder for VAE, generator/discriminator for GAN, diffusion processes for DDPM). Train the models using appropriate loss functions and optimizers.
4. Evaluation Metrics	Use statistical measures (MMD, RMSE) and visualization techniques (t-SNE, U-Map). Conduct applicative tests (benchmarks) to evaluate performance.
5. Model Training	Train the generative models, monitoring training with validation loss and early stopping criteria.
6. Inference and post-processing	Generate new samples using trained models and apply post-processing techniques to enhance the generated data.
7. Classification and Evaluation	Train classifiers (e.g., CNN, RNN) on generated and real data. Evaluate using cmAP, AUROC, and T1-Acc metrics.