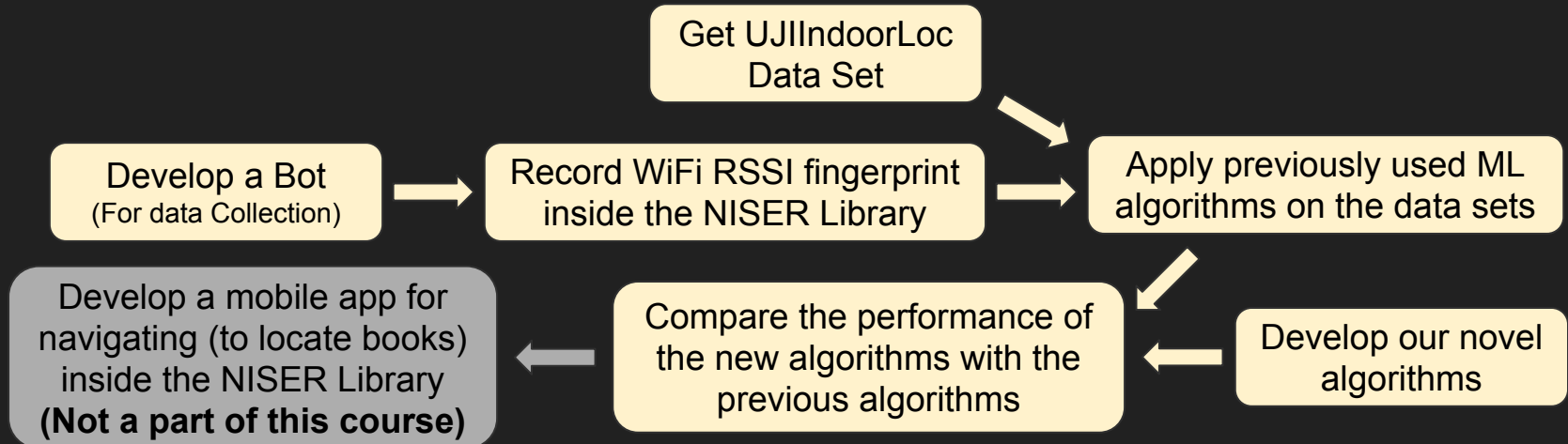# Indoor Localization using WiFi RSSI fingerprinting

Group 13
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Aim: To develop a novel ML algorithm for indoor localization using WIFI RSSI fingerprint mapping.

Get UJIIndoorLoc Data Set

Develop a Bot (For data Collection) → Record WiFi RSSI fingerprint inside the NISER Library → Apply previously used ML algorithms on the data sets

Develop a mobile app for navigating (to locate books) inside the NISER Library **(Not a part of this course)** ← Compare the performance of the new algorithms with the previous algorithms ← Develop our novel algorithms

Data Sets:

1. [UJIIndoorLoc Data Set](): This dataset covers three Jaume I University buildings with four floors, whose total coverage area is approximately 110 m^2. This data set can be used both for classification and regression

2. NISER Library: We will collect the RSSI fingerprint in NISER library using a bot.

Algorithms:
1. kNN (K-Nearest Neighbor)
2. ANN (Artificial Neural Network)
3. Graph Neural Network based ANN (Considering the location of APs)

Our Novel Algorithm:
1. Ray tracing based
2. Dual band WiFi