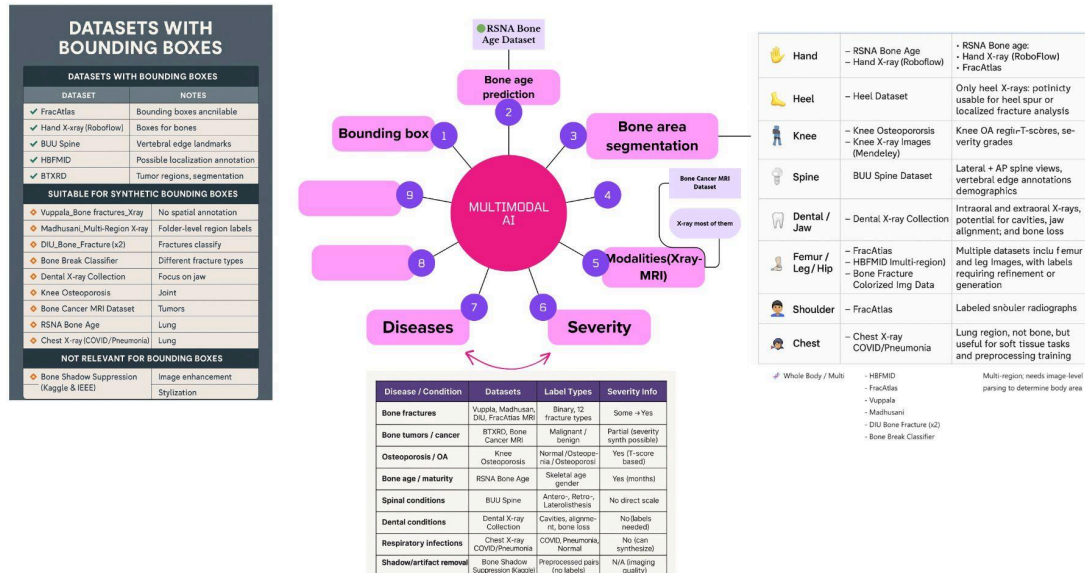


RESEARCH IDEA BRAINSTORM

The idea initial about an AI that can be helpful in patient level understanding



So, we have 20 datasets and we have a few questions to ask.

01. How many labeled datasets or suitable datasets are there that can predict the bone age?

- RSNA Bone age (A little problem—Children's bone)
- Knee Osteoporosis (patient details)___Age included

02. Which Datasets can be used for deciding the origin of the bone in human body?

- FracAtlas: body-level labels for hand, leg, hip, and shoulder.

- **Madhusani_Bone Fracture Multi-Region X-ray:** Multi region
- **HBFMID: Elbow, Finger, Forearm, Humerus, Shoulder, Femur, Shin, Knee, Hip, Wrist, Spinal cord, and Healthy**
- **Heel Dataset: heel**
- **Hand X-ray Dataset (Roboflow):** M2, M3, M4, Metacarpus, Radius, Sanders, and Ulna.
- **Knee Osteoporosis: knee joint.**
- **Knee X-ray Images (Mendeley): Knee region**
- **BUU Spine Dataset: lumbar spine**
- **Dental X-ray Collection: dental region.**

03. What modalities can we detect?

Xray(mostly) , MRI(Bone cancer)

04. What diseases diagnosis can we provide using 'em?

- Bone Fracture:
(Vuppala, Madhusani, FracAtlas, DIU, HBFMID, Bone Break Classifier)
- Bone Tumor:(BTXRD, Bone Cancer MRI Dataset)
- Osteoporosis: Knee Osteoporosis
- Spinal Disorders: BUU Spine Dataset:

- Heel Pathology: heel dataset
- Maturity: RSNA bone age

05. Can we measure severity?

- DIU_Bone-Fracture (Mendeley): Has Normal and severe annotated images
- **Knee Osteoporosis:** This dataset provides direct severity labels: "Normal, osteopenia, osteoporosis (T-score)"
- **Chest X-ray COVID/Pneumonia/Normal:** This dataset has labels for "COVID, pneumonia, normal"
- **Bone Cancer MRI Dataset:** This dataset distinguishes between "Cancer vs normal"
- **HBFMID:** This dataset has labels for 10 different fracture types, including "comminuted" and "spiral,"
- **BUU Spine Dataset:** This dataset classifies different spinal disorders, such as "Antero/retrolisthesis, laterolisthesis,"

06. Bounding box:

- **FracAtlas:** This dataset includes "Bounding boxes + masks" in COCO, Pascal VOC, and YOLO formats.
- **HBFMID:** This dataset has "Likely boxes/masks".
- **Hand X-ray Dataset (Roboflow):** This dataset provides "Boxes for bone regions".

- **BTXRD (Bone Tumor Radiograph Dataset):** This dataset has "Likely boxes/masks".
- **Bone Break Classifier Dataset:** This dataset has the potential for "synthetic bounding boxes & severity"