1. **Setting up ROS Workspace and a new package.**
    a. A CMakeList is a generator of build systems. It can produce Make files and is also a convenient for multi-language program development. Whereas makefile is a file which has tools which build the given file for you. But once make file is executed, it forgets how the build was executed. While Cmake tracks it.
    b. We must modify the Cmakelists.txt for python as well. But there is no executable we need to create in python. But in c++ we need to add_executable for each node/file we create.
    c. We call it in the root directory. Eg if the folder is named catkin_ws / we cd into catkin_ws and then we use catkin_make
    d. The program files when sourced, tells bash where the ROS programs and libraries are, tells Python where it can find the rospy libraries, etc.
2. **Simple Lidar Processing Node: Publishing to a new topic**
    a. A nodehandle object is interface for ROS and the program we have written. No, you cannot have more than one node handle objects, it is not needed. This interface creates your publishers and subscribers.We will create problems if there more than one nodehandler in a file.
    b. There isn't a need for nodehandle in python since, rospy init once initializes the node for you at the start of the program.
    c. RosSpinOnce checks for callbacks/services as per your frequency setting. But ros Spin does not return anything until the node has been shut down.
    d. Ros:rate maintains a particular time for a loop, it checks if the main loops runs within the time specified.
    e. In rospy the subscriber's callbacks are executed in separate threads. In rospy, each subscriber has its own thread which handles its callback functions automatically.in roscpp where callbacks are handled through
3. **Implementing Custom Messages (20)**
    a. We included the header file itself, since in the dependencies we had created the scan_msg to be the source and to take the files inside it for reference. We need to add message file since Cmake can better handle this reference by creating it's header file in the devel folder.
    b. Yes, that header was the seq number, timestamp such fields are added. ROS has a custom message Header header which can be added to the msg file. The header file provides information such as co-ordinates, timestamps, number.
4. **Bag files**
    a. The bag files get saved in a temp directory created by us. We can create another directory to save it or use a launch file with a specified location for saving the logs. rosbag record -o /mnt/pen/ /chatter will savebg file with timestamp at a specified location whereas record with -O will save exactly the name specified.
    b. We can specify the subdirectory in our main workspace or somewhere separate.