Practice Questions and Exercises

1. When is the objects constructor called?
2. When is the objects destructor called?
3. What concept of object orientated programming do we use when we make data members private and use member functions to access and modify them?
4. What state should an object be in after the constructor is completed running?
5. Create a class named Device with the following:
   1. private data members of the following;
      1. an integer named “\_id”
      2. an integer named “\_bitrate”
      3. a pointer to a Device named “\_child\_device”
      4. a pointer to a char named “\_name”
   2. Public member functions with the following specifications;
      1. Default constructor. The default constructor sets the pointers to a safe state and the integers to -1;
      2. An overloaded constructor that takes a char pointer name “n” and named “bitrate”. If the char pointer has content, put the contents into \_name. If it does not put it to a safe state. Assign the value of bitrate to \_bitrate. Ensure that all data members, if not given a value, are put into a safe state.
      3. A destructor that ensures not memory leaks occur.
      4. A getter/query function as well as a setter/modifier function for each private data member. Ensure each setter/modifier validates the parameters as necessary. Also ensure pointers are not nullptr’s. Also ensure that no memory leaks occur in the setters/modifiers.