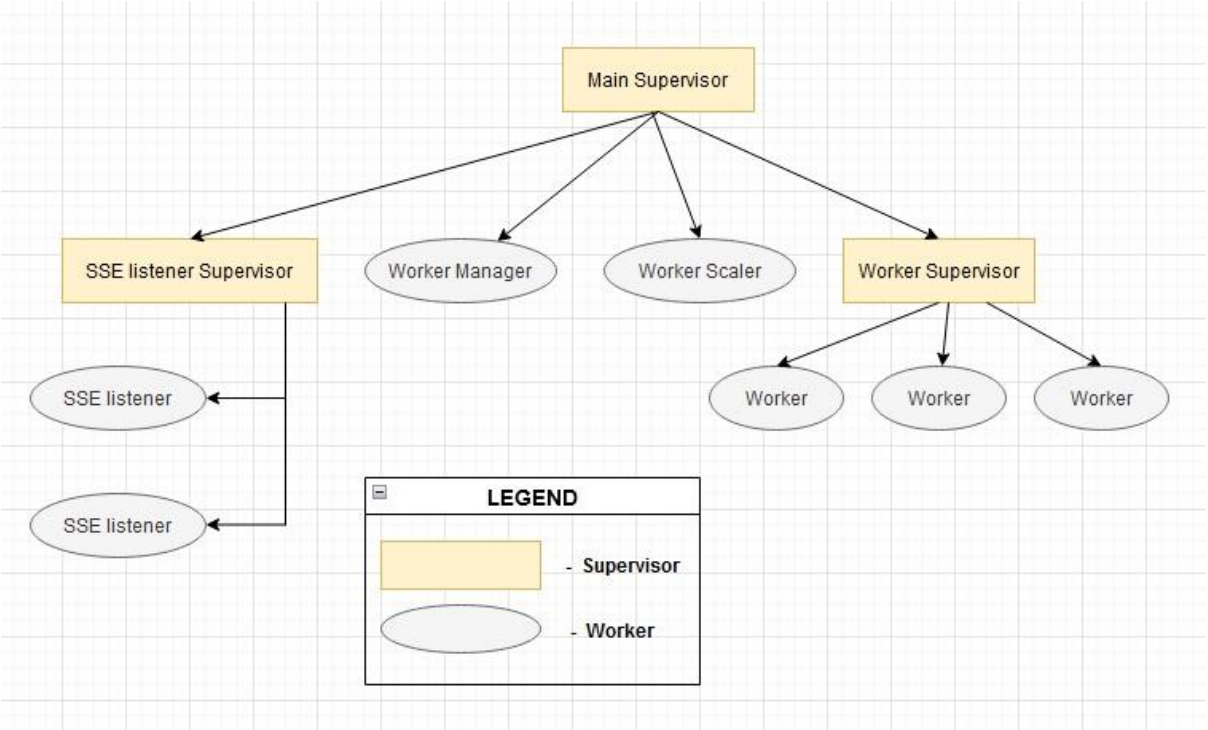
RTP Documentation.

1. **Technologies**:
    a. **Erlang language** - I chose this language from the list of available ones [Erlang, Elixir, Scala]:
        i. **Erlang vs Scala**: wanted to learn a new programming paradigm - functional and as Internet says, it is better suited for working with many parallel tasks.
        ii. **Erlang vs Elixir**: since both languages work on the same virtual machine, I chose Erlang only because its syntax looked much "cleaner".
    b. **Erlang/OTP** - framework for creating distributed systems well suited to solving the problems from this lab. work and just interesting to study.
    c. **Rebar3** - an Erlang tool that makes it easy to compile and run project with a big amount of files.
    d. **jsx** - an erlang library for manipulating json.
2. **Actors:**
    a. **‘Application’** - actor to start and stop ‘Main Supervisor’.
    b. **‘Main Supervisor’** - actor to start ‘SSE listener Supervisor’, ‘Worker Supervisor’, ‘Worker Manager’ and ‘Worker Scaler’.
    c. **‘SSE listener Supervisor’** - actor by initialization get a list of URLs and for every URL start a new ‘SSE listener’ actor.
    d. **‘SSE listener’** - actor to establish a SEE connection, listen to all events and send json data to ‘Worker Manager’.
    e. **‘Worker Manager’** - actor to receive json data from listener, notify ‘Worker Scaler’ about new message, choose ‘Worker’ by ‘round-robin distribution’ and send json data to this ‘Worker’.
    f. **‘Worker Scaler’** - actor to start new ‘Workers’ by ‘Worker Supervisor’ or stop useless. Actor will count messages in a time interval and decide how many ‘Workers’ are enough.
    g. **‘Worker Supervisor’** - actor to dynamically balance the amount of ‘Workers’.
    h. **‘Worker’** - actor to receive json data from ‘Worker Manager’, serialize it, sleep for a half of a second to imitate some processing and print data in output.
3. **Endpoints:**
    a. **‘Worker Manager’:**
        i. Async: {tweet - atom, Tweet - json data string}
        Get json data to send it to one of ‘Workers’.
    b. **‘Worker Scaler’:**
        i. Async: {inc - atom}
        Get signal to increment current counter.

c. **'Worker':**
   i. Async: {tweet - atom, Tweet - json data string}
      Process tweet.

d. **'Worker Supervisor':**
   i. Function call: **start_worker**/1, when Count - integer
      Start 'Count' amount of workers.
   ii. Function call: **stop_worker**/1, when Count - integer
      Stop 'Count' amount of workers.

4. Supervision Tree:



5. Message Exchange Diagram