Algorithm to add new observers to toolbox

1. Choose generic observers with linear matrix inequalities (LMIs) from any of the conference or journal papers.

2. `DOTVeX` strictly requires CVX software. Please download and install CVX software according to system specifications.

3. Write separate Matlab M-file for:

- Displaying system and observer dynamics i.e., `disp_1_5.m`
- Defining matrices for pre-defined example i.e., `example_1_5.m`
- To obtain observers gain and thus, solve LMIs we use CVX software i.e., `run_1_5.m`
- To solve system and observer dynamics use ODE suite i.e., `model_1_5.m`
- In order to plot states, error dynamics norm, we utilized two Matlab M-files. One for purely pre-defined method i.e., `pre_1_5.m` and the other M-file used for operating custom based method and user-defined method i.e., `plot_1_5.m`

4. Please make sure to add user interface options to M-file that deals with plotting results. Options such as time of simulation, initial conditions and step size.

5. Create a new folder in DOTVeX with corresponding observer number and place all six Matlab M-files in the same folder.

Example: Suppose a user adding 5th observer in the nonlinear dynamical system list, folder must be named as `2_5` where `'2'` corresponds to nonlinear dynamical system.

6. In `add_all_paths.m` use `addpath` command which adds folder in the search path for DOTVeX session.

7. Based on the dynamics of the observer classify observer as either 'Linear dynamical system' or 'Nonlinear dynamical system'.

8. `print_table.m` constitute of observers that are listed under linear dynamical system and `print_tableNLS.m` composed of observers that are listed under nonlinear dynamical system.

9. While adding observer to the table, please follow this format. [Observer name__system dynamics]

Example:
`Unknown Input Sliding Mode Observer for LTI Systems with Unknown Inputs (w) [ x_dot = A x + B_u u + B_w w ; y = C x + D_u u ]`

10. As we all know DOTVeX is classified as custom based system, user-defined system and pre-defined examples. Here, `interact_case1.m` is associated with custom based system. `interact_cas2.m` is related to user-defined system and `interact_case3.m` is corresponding to pre-defined example.

11. Using switch case in each of the `interact_case.m` include Matlab M-files accordingly.

- For example: `interact_case1.m` i.e., custom based system requires following observer Matlab M-files
  - `disp_1_5.m`
  - `run_1_5.m`
  - `plot_1_5.m`
  - An image (.png format preferably) that shows system, observer dynamics and LMIs

12. Please add necessary user interface options in `input_the_system.m` using switch case. Arguments must be based on the observer requirements. This Matlab M-file operates custom based dynamical system. Please add necessary and sufficient conditions at the end of corresponding switch case.