

# Software Documentation

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## App.py

- App.py is the backend file based on flask and is responsible triggering index.html and hence runs the webpage.
- The input for this python file is the ros bag file. When the user provides any other file of a different format, the UI throws an error stating wrong file type.
- The input ros bag file has no size restrictions.
- The user should upload the ros bag file in the home page, once uploaded, the backend program - App. py is triggered to extract relevant information from the uploaded bag file.
- The App. py has three major functions namely: bag\_info, color\_gen and bag\_content and upload.
- **Function bag\_info:** This function is responsible for extraction of topics, messages ,start and end time from the bag file uploaded by the user. A pandas dataframe is created from the extracted information.
- **Function color\_gen:** This function is responsible for generation of random colors based on the number of topics extracted from the ros bag file. The generated colors are then assigned to each of the topics.
- **Function bag\_content:** This function is responsible for creating another pandas dataframe with time, topic, message and colors assigned to respective topics and filters the relevant messages required. Only the messages in string format are extracted.
- Once the relevant information is further filtered, the contents are converted in to a json file and is exported to the function upload.
- **Function upload:** This function receives the input from the function bag\_content and triggers the SDP\_visualize.html page.

## Index.html

- This is a html and java script. It includes a header section. The user can provide the input via option drag and drop and could upload the file.
- It also checks the extension of the file being uploaded, displays an alert box if it is not a .bat file.

## SDP\_visualize.html

- It has a header section which displays the time line graph. It utilizes the **package vis**. It also includes legends and a check box for selection of topics of interest.
- The interactive time line visualization is provided with zoom-in option up-to milliseconds.

- It displays the nodes at the time when the topic publishes the message.
- On hovering , the topic name, message and time stamp is displayed.
- Select topic check box allows the user to shortlist the topics of interest to be visualized.