# **Thinking Algorithm**

#### **How to Build Keras Environment**

- You should have installed proper version of python
- Install pip using easy\_install @\$PYTHON\_HOME/Scripts

```
sudo easy_install pip
```

• Install numpy, scipy, theano and keras

```
sudo pip install numpy
sudo pip install scipy
sudo pip install theano
sudo pip install keras
```

• Change backend of Keras to theano

```
vim ~/.keras/keras.json
#change "backend":"tensorflow" to "backend":"theano"
```

• Import keras in python to check in terminal, type in the following commands

```
python3
>>> import keras
```

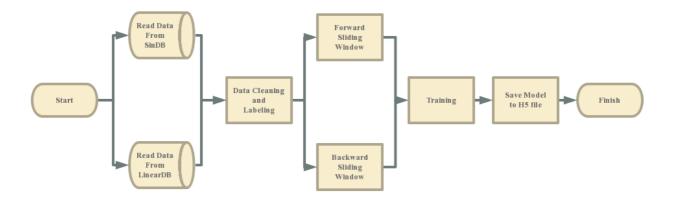
Setting up is done if there is error-free.

# How to start the thinking algorithms

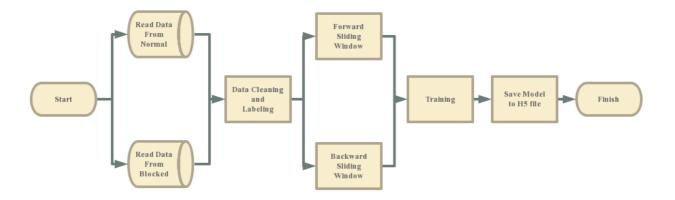
Open up a terminal, type python3 main.py. Done.

# **Trainning Process**

#### Type Recognizing



#### **Cut Blocking Detection**



# **Thinking Process**

