```
import tensorflow as tf
from tensorflow import keras
import numpy as np


fashion_mnist=keras.datasets.fashion_mnist


(train_images,train_labels),(test_images,test_labels)=fashion_mnist.load_data()
```

```
    Downloading data from https://storage.googleapis.com/tensorflow/tf-keras-dataset
    32768/29515 [================================] - 0s 0us/step
    Downloading data from https://storage.googleapis.com/tensorflow/tf-keras-dataset
    26427392/26421880 [==============================] - 0s 0us/step
    Downloading data from https://storage.googleapis.com/tensorflow/tf-keras-dataset
    8192/5148 [===============================================] - 0s 0us/step
    Downloading data from https://storage.googleapis.com/tensorflow/tf-keras-dataset
    4423680/4422102 [==============================] - 0s 0us/step
```

```
train_images=train_images/255.0
test_images=test_images/255.0


train_images[0].shape
```

```
    (28, 28)
```

```
def build_model(hp):
  model = keras.Sequential([
    keras.layers.Conv2D(
        filters=hp.Int('conv_1_filter',min_value=32,max_value=128,step=16),
        kernel_size=hp.Choice('conv_1_kernel',values =[3,5]),
        activation='relu',
        input_shape=(28,28,1)
    ),
    keras.layers.Conv2D(
        filters=hp.Int('conv_2_filter',min_value=32,max_value=64,step=16),
        kernel_size=hp.Choice('conv_2_kernel',values=[3,5]),
        activation='relu'
    ),
    keras.layers.Flatten(),
    keras.layers.Dense(
        units=hp.Int('dense_1_units',min_value=32,max_value=128,step=16),
        activation='relu'
    ),
    keras.layers.Dense(10, activation='softmax')#output layer
  ])
  model.compile(optimizers=keras.optimizers.Adam(hp.Choice('learning_rate',values=[1e
              loss='sparse_catagorical_crossentropy',
              metrics=['accuracy'])
```

```
  return model


from kerastuner import  RandomSearch
from kerastuner.engine.hyperparameters import HyperParameters


tuner_search=RandomSearch(build_model,
                          objective='val accuracy',
                          max_trials=5,directory='output',project_name="Mnist Fashion


tuner_search.search(train_images,train_labels,epochs=3,validation_split=0.1)


model=tuner_search.get_best_models(num_models=1)[0]


model.summary()
```