Customer Age Demographics

DEEP LEARNING FINAL PROJECT

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Business Objectives

Create targeted marketing campaigns

Targeting and categorizing new visiting customers by age
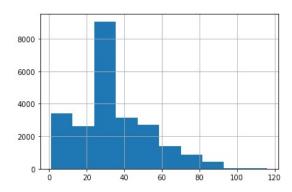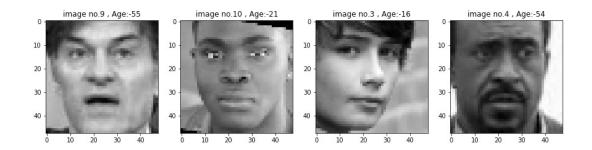
Example: Anonymous Customer

Data Facts

- Data Source

  - Kaggle Dataset

- Data Description

  - 23,705 Rows

  - Four Columns
    - Images
    - Age
    - Ethnicity
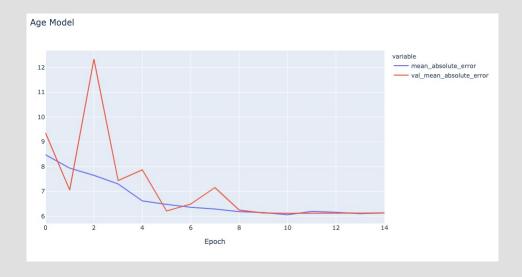   - Gender

Age Distribution

image no.9 , Age:-55   image no.10 , Age:-21   image no.3 , Age:-16   image no.4 , Age:-54
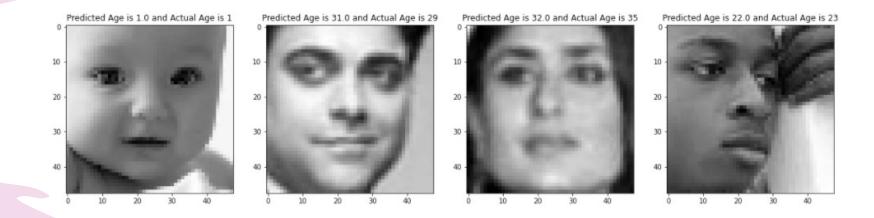
Input Images

Convolutional Neuro Network Architecture

```python
model=Sequential()

model.add(Conv2D(128,(3,3),activation='relu',input_shape=(48,48,1)))

model.add(MaxPool2D((2,2)))

model.add(BatchNormalization())

model.add(Conv2D(64,(3,3),activation='relu'))

model.add(MaxPool2D((2,2)))

model.add(BatchNormalization())

model.add(Conv2D(32,(3,3),activation='relu'))

model.add(MaxPool2D((2,2)))

model.add(BatchNormalization())

model.add(Flatten())

model.add(Dense(128,activation='relu', kernel_regularizer=keras.regularizers.l2(0.01)))

model.add(Dropout(0.18))

model.add(Dense(32,activation='relu', kernel_regularizer=keras.regularizers.l2(0.01)))

model.add(Dropout(0.18))

model.add(Dense(1,activation='relu'))
```

CNN Performance

Mean Absolute Error: 6.2
years

Predicted Age is 1.0 and Actual Age is 1 · Predicted Age is 31.0 and Actual Age is 29 · Predicted Age is 32.0 and Actual Age is 35 · Predicted Age is 22.0 and Actual Age is 23

Model Predictions

Next Steps: Anonymous Customer

Thank You