```
data=readtable("all.xlsx","TextType",'string');
head(data)
figure
wordcloud(data.AllReviews_2819_)
title("Raw Data")
cleaned_comments=preprocessText(data.AllReviews_2819_);
figure
wordcloud(cleaned_comments);
title("Cleaned Data");


%N GRAM COUNTİNG

cleaned_sideeffect=preprocessText(data.AllReviews_2819_);
bag=bagOfNgrams(cleaned_sideeffect);
figure
wordcloud(bag)


%Topic Model

mdl=fitlda(bag,10);
figure
for i=1:4
   subplot(2,2,i)
   wordcloud(mdl,i)
   title("Lda Topic:"+i);
end


%sentiment analys

filename='all.xlsx';
tbl= readtable(filename,'TextType','string');
head(tbl)
str = tbl.AllReviews_2819_;
documents =preprocessText(str);
documents(1:5)
compoundScores = vaderSentimentScores (documents);

compoundScores(1:5)

idx = compoundScores > 0;
strPositive = str(idx);
strNegative = str(~idx);

figure
subplot(1,2,1)
wordcloud(strPositive);
title("Positive Sentiment")
```

```
subplot(1,2,2)
wordcloud(strNegative);
title("Negative Sentiment")



%Machine Learning-SentimentAnalysis

emb=fastTextWordEmbedding;
data=readL;
idx=~isVocabularyWord(emb,data.AllReviews_2819_);
data(idx,:)=[];
numword=size(data,1);
cvp=cvpartition(numword,'Holdout',0.1);
dataTrain.word=data(training(cvp),:);
dataTest.word=data(test(cvp),:);
xtrain=word2vec(emb,dataTrain.word);
xTest=word2vec(emb,dataTest.word);
yTrain.word=dataTrain.Label;
mdl=fitcsvm(xtrain,ytrain.word);
ypred=predit(mdl,xtest.word);
ytest=dataTest.Label;
figure
confusionchart(ytest,ypred)


%FUNCTİON PREPROCESS TEXT

function documents = preprocessText(textData)

% Tokenize the text.
documents = tokenizedDocument(textData);

% Convert to lowercase.
documents = lower(documents);

% Erase punctuation.
documents = erasePunctuation(documents);

documents=removeShortWords(documents,3);

documents=normalizeWords(documents);

documents=removeStopWords(documents);

documents=removeLongWords(documents,10);


%FUNCTİON READ LEXİON
```

```
function data = readLexion

% Read positive words
fidPositive = fopen(fullfile('opinion-lexicon-English','positive-words.txt'));
C = fopen(fidPositive,'%s','CommentStyle',';');
wordsPositive = str(C{1});

% Read negative words
fidNegative = fopen(fullfile('opinion-lexicon-English','negative-words.txt'));
C = textscan(fidNegative,'%s','CommentStyle',';');
wordsNegative = string(C{1});
fclose all;

% Create table of labeled words
words = [wordsPositive;wordsNegative];
labels = categorical(nan(numel(words),1));
labels(1:numel(wordsPositive)) = "Positive";
labels(numel(wordsPositive)+1:end) = "Negative";

data = table(words,labels,'VariableNames',{'Word','Label'});

end
```