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Upload excel file

```
close all
clc
clear all
m = readtable('C:\Users\Aron Gauti\Dropbox\HR\Meistaraverkefni\Results\toExcel376.csv');
imnr = table2array(m(:,1));
filename = table2array(m(:,2));
bottles = table2array(m(:,3));
detections = table2array(m(:,4));
truepos = table2array(m(:,5));
falsepos = table2array(m(:,6));
iou = table2array(m(:,7));
mind = table2array(m(:,8));
maxd = table2array(m(:,9));
aved = table2array(m(:,10));
% Precision and Recall
precision = truepos./(falsepos+truepos); nanpre = isnan(precision); precision(nanpre) = 0;
recall = truepos./(truepos+(bottles-truepos)); nanrec = isnan(recall); recall(nanrec) = 0;
f1 = 2*((precision.*recall)./(precision+recall)); f1(isnan(f1)) = 0;
m('Precision') = precision;
m('Recall') = recall;
m('F1') = f1;
```

Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property.
Set 'VariableNamingRule' to 'preserve' to use the original column headers as table variable names.

Plot products

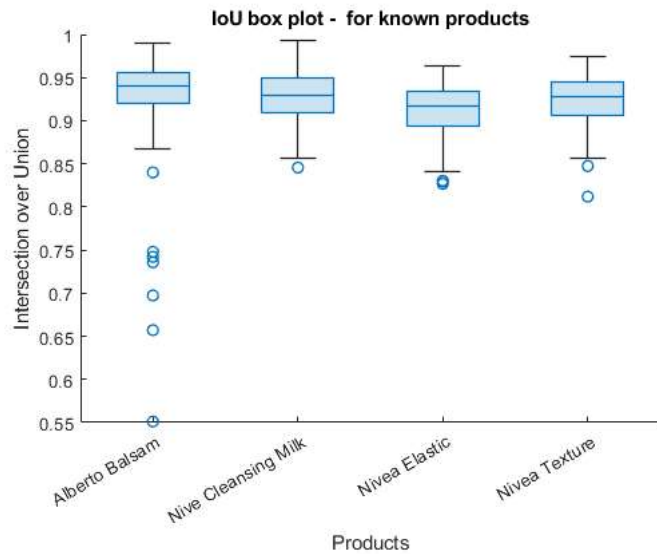
```
close all
clc
names = strings(1,375);
for j = 1:376
    if (j <= 101)
        balsam(j) = iou(j);
        balsamf1(j) = f1(j);
        names(1,j) = 'Alberto Balsam';
    elseif (j > 101) && (j<=203)
        niveaclean(j-101) = iou(j);
        niveacleanf1(j-101) = f1(j);
        names(1,j) = 'Nivea Cleansing Milk';
    elseif (j > 203) && (j <= 304)
        niveaelastic(j-203) = iou(j);
        niveaelasticf1(j-203) = f1(j);
        names(1,j) = 'Nivea Elastic';
    elseif (j > 304) && (j <= 376)
        niveatexture(j-304) = iou(j);
        niveatexturef1(j-304) = f1(j);
        names(1,j) = 'Nivea Texture';
    end
end
```

Boxplot

```
prnames = {'Alberto Balsam', 'Nivea Cleansing Milk', 'Nivea Elastic', 'Nivea Texture'};
pr = NaN(102, length(prnames));
pr(1:length(balsam),1) = balsam; pr(1:length(niveaclean),2) = niveaclean;
pr(1:length(niveaelastic),3) = niveaelastic; pr(1:length(niveatexture),4) = niveatexture;

figure()
boxchart(pr)
xticklabels({'Alberto Balsam','Nive Cleansing Milk','Nivea Elastic','Nivea Texture'})
title(['IoU box plot - for known products'])
xlabel('Products')
ylabel('Intersection over Union')

name = "C:\Users\Aron Gauti\Dropbox\HR\Meistaraverkefni\Results\boxplotForKnownProducts.png";
saveas(gcf,name,'png')
```



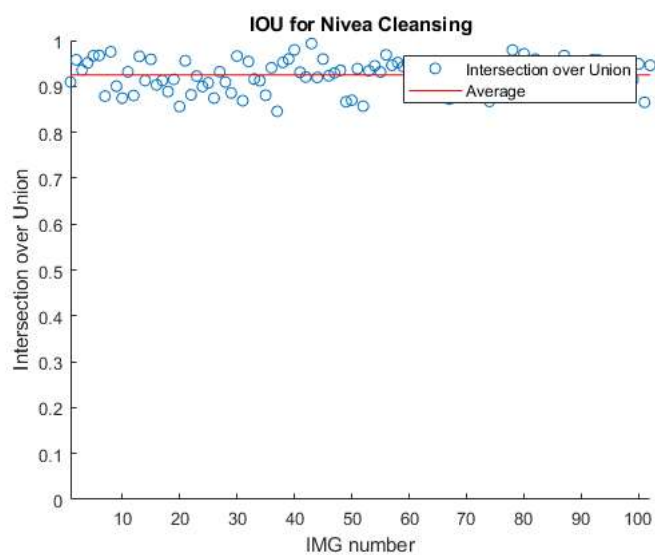
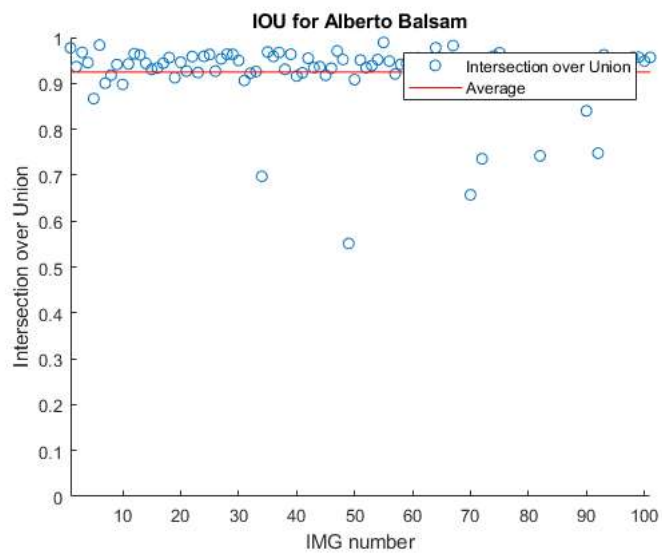
```
close all
x101 = 1:101;
x102 = 1:102;
x72 = 1:72;

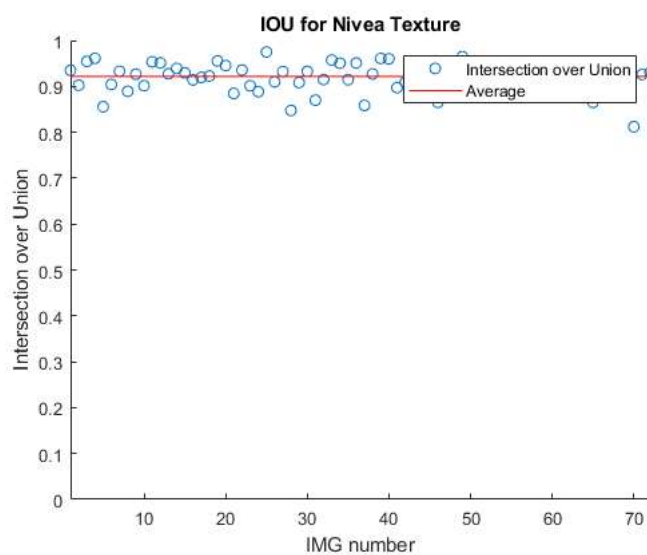
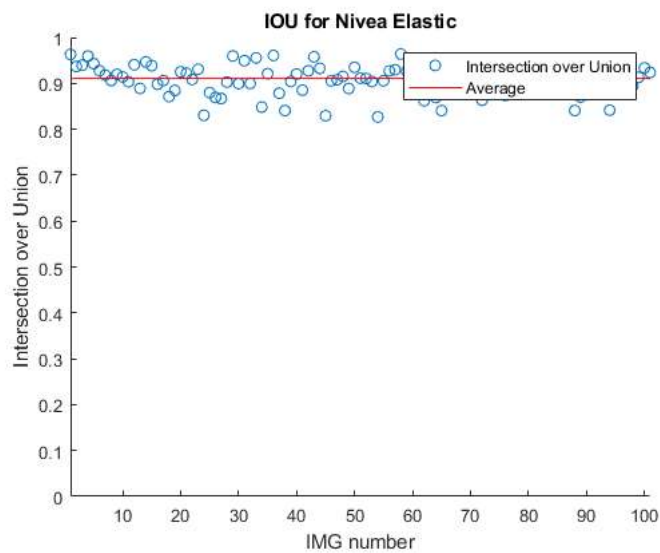
% Balsam
figure(1)
scatter(x101, balsam)
hold on
plot(x101, ones(length(x101),1)*mean(balsam), "-r")
axis([1 101 0 1])
title(['IOU for Alberto Balsam'])
xlabel('IMG number')
ylabel('Intersection over Union')
legend('Intersection over Union', 'Average')
name = "C:\Users\Aron Gauti\Dropbox\HR\Meistaraverkefni\Results\albertobalsamIOU.png";
saveas(gcf, name, 'png')

%Nivea cleansing
figure(2)
scatter(x102, niveaclean)
hold on
plot(x102, ones(length(x102),1)*mean(niveaclean), "-r")
axis([1 102 0 1])
title(['IOU for Nivea Cleansing'])
xlabel('IMG number')
ylabel('Intersection over Union')
legend('Intersection over Union', 'Average')
name = "C:\Users\Aron Gauti\Dropbox\HR\Meistaraverkefni\Results\niveacleansingIOU.png";
saveas(gcf, name, 'png')

figure(3)
scatter(x101, niveaelastic)
hold on
plot(x101, ones(length(x101),1)*mean(niveaelastic), "-r")
axis([1 101 0 1])
title(['IOU for Nivea Elastic'])
xlabel('IMG number')
ylabel('Intersection over Union')
legend('Intersection over Union', 'Average')
name = "C:\Users\Aron Gauti\Dropbox\HR\Meistaraverkefni\Results\niveaelasticIOU.png";
saveas(gcf, name, 'png')

figure(4)
scatter(x72, niveatexture)
hold on
plot(x72, ones(length(x72),1)*mean(niveatexture), "-r")
axis([1 72 0 1])
title(['IOU for Nivea Texture'])
xlabel('IMG number')
ylabel('Intersection over Union')
legend('Intersection over Union', 'Average')
name = "C:\Users\Aron Gauti\Dropbox\HR\Meistaraverkefni\Results\niveatextureIOU.png";
saveas(gcf, name, 'png')
```





Average IOU for each item

```
avgb = mean(balsam)
avgnc = mean(niveaclean)
avgne = mean(niveaelastic)
avgnt = mean(niveatexture)
```

```
avgb =
0.92442
```

```
avgnc =
0.92484
```

```
avgne =
0.91071
```

```
avgnt =
0.92169
```

Splitting items

```
format short g
i1 = m(m.ImageNr <= 101, :); i2 = m((m.ImageNr <= 203 & m.ImageNr > 101), :);
i3 = m((m.ImageNr <= 304 & m.ImageNr > 203), :); i4 = m((m.ImageNr <= 376 & m.ImageNr > 304), :);
```

```
for i=1:4
    itemprod(i) = sum(eval(['i' num2str(i) '.Bottles']));
    itemdet(i) = sum(eval(['i' num2str(i) '.Detections']));
    itemTP(i) = sum(eval(['i' num2str(i) '.TruePositive']));
    itemFP(i) = sum(eval(['i' num2str(i) '.FalsePositive']));
    itemIoU(i) = round(mean(eval(['i' num2str(i) '.IOU'])),4);
    itemPr(i) = round(mean(eval(['i' num2str(i) '.Precision'])),4);
    itemRe(i) = round(mean(eval(['i' num2str(i) '.Recall'])),4);
    itemF1(i) = round(mean(eval(['i' num2str(i) '.F1'])),4);
end
itemnr = 1:4;

avgtable = table(itemnr', itemprod',itemdet',itemTP', itemFP',itemIoU', itemPr', itemRe', itemF1');
avgtable.Properties.VariableNames = {'Item' 'All-Products' 'All-Detections' 'All-True Positive' 'All-False Positive' 'Avg-IoU' 'Avg-Precision' 'Avg-Recall' 'Avg-F1'}
writetable(avgtable,'table376.csv', 'Delimiter',',')
```

avgtable =

4×9 table

Item	All-Products	All-Detections	All-True Positive	All-False Positive	Avg-IoU	Avg-Precision	Avg-Recall	Avg-F1
1	101	101	101	0	0.9244	1	1	1
2	102	102	102	0	0.9248	1	1	1
3	101	101	101	0	0.9107	1	1	1
4	72	72	72	0	0.9217	1	1	1