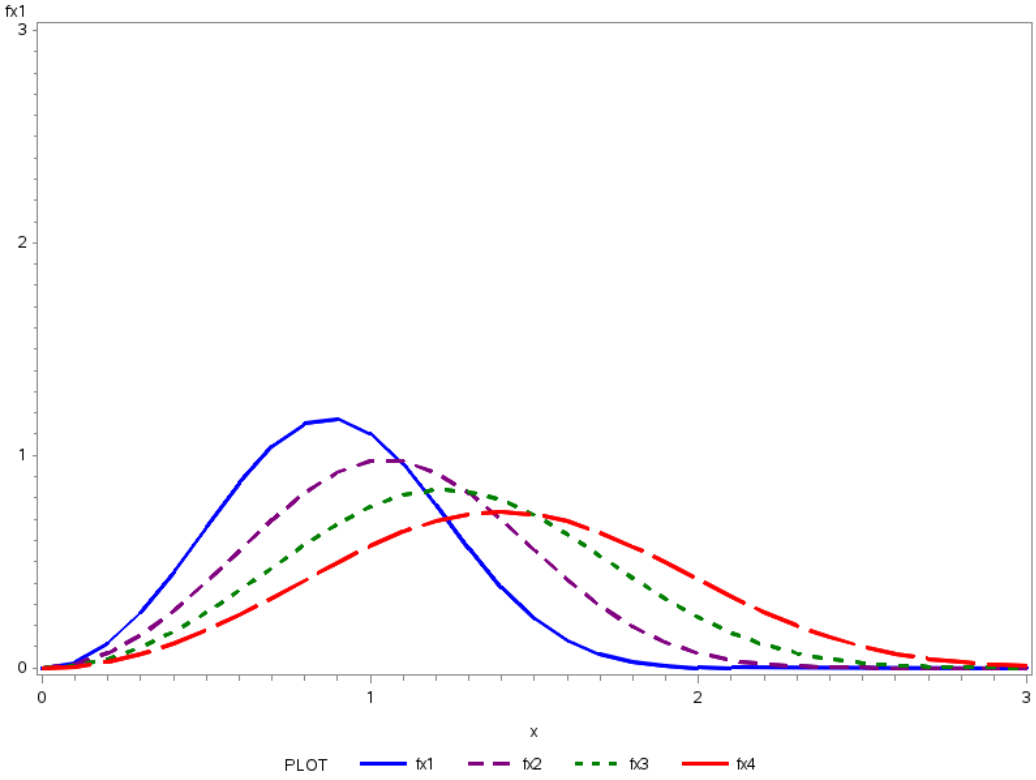
WST211: Memorandum Practical 7 (2016)

SAS Program

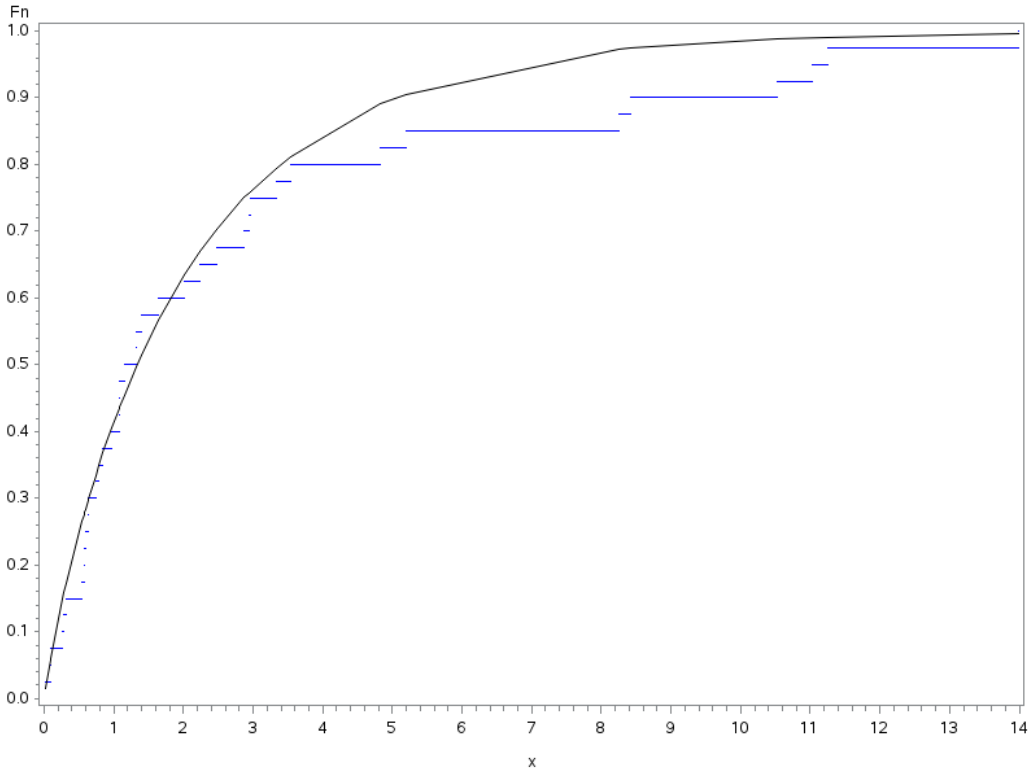
```
data wei1;
do x=0 to 3 by 0.1;
fx1=pdf('weibull',x,3,1);
fx2=pdf('weibull',x,3,1.2);
fx3=pdf('weibull',x,3,1.4);
fx4=pdf('weibull',x,3,1.6);
output;
end;

goptions reset=all i=join;
symbol1 colour=blue line=1 width=2;
symbol2 colour=purple line=3 width=2;
symbol3 colour=green line=33 width=2;
symbol4 colour=red line=5 width=2;

proc gplot;
plot (fx1 fx2 fx3 fx4)*x/vaxis=0 to 3 overlay legend;
run;

data wei2;
n=40;
do i=1 to n;
x=rand('weibull',0.9,2);
output;
end;

proc sort data=wei2;
by x;

data wei2;
set wei2;
ii=_n_;
Fn=ii/n;
F=CDF('WEIBULL',x,0.9,2);

goptions reset=global;
symbol1 color=blue interpol=step;
symbol2 color=black interpol=join;

proc gplot data=wei2;
plot Fn*x F*x/overlay;
run;
```

Question 1



The scale parameter is θ. Changing the value of θ changes the spread (scale) of the pdf function.

Question 2



Question 3

The sample is bigger, size 400, which gives more information of the distribution from which it was drawn. Therefore the graph of the empirical distribution function is closer to the theoretical distribution function.