STAT3032 SURVIVAL MODELS

TUTORIAL WEEK Eleven

Question One

Consider the following data:

$$t = \frac{|x^* - x|}{b}$$

x	*y*
0	4
2.1	6
.5	2
1	4.5
4	7
1.5	3
1.9	8
2	4
2.5	6
3	5

Find the kernel smooth of the data at $x = 2$ using

(a) a triangle kernel with a bandwidth of 2;

(b) a normal kernel with a bandwidth of 1.

Question Two

Using data generated by the following R commands:

```
set.seed(123)
x<-seq(0,4,by=0.05)
y<-sin(4*x)+rnorm(length(x),0,1/3)
```

Investigate: (a) an appropriate value of the bandwidth for kernel smoothing using the normal kernel and (b) an appropriate number of knots for use with natural cubic splines.

Question Three (You won't be required to write R functions under exam conditions)

Write an R function which computes the "triangle" kernel smooth of a set of data x and y. Your function should take as input the data and an optional bandwidth parameter. The function should return the kernel smooth values. Apply your function to the data generated in question two.