

IS606 Bayesian (Homework 9)

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2.1 (p31)

Model A The following code defines a function for the Model A probabilities.

```
xSeq <- seq(1, 4)
modelA <- function(x)
{
  return (1 / 4)
}

dfModelA <- data.frame(x=xSeq, Px=modelA(xSeq))
kable(dfModelA, caption="Model A Probabilities")
```

Table 1: Model A Probabilities

x	Px
1	0.25
2	0.25
3	0.25
4	0.25

We don't see any bias in the Model A probabilities. They are all equal.

Model B The following code defines a function for the Model B probabilities.

```
modelB <- function(x)
{
  return (x / 10)
}

dfModelB <- data.frame(x=xSeq, Px=modelB(xSeq))
kable(dfModelB, caption="Model B Probabilities")
```

Table 2: Model B Probabilities

x	Px
1	0.1
2	0.2
3	0.3
4	0.4

Model B is biased toward the higher numbers.

Model C The following code defines a function for the Model C probabilities.

```
modelC <- function(x)
{
  return (12 / (25 * x))
}

dfModelC <- data.frame(x=xSeq, Px=modelC(xSeq))
kable(dfModelC, caption="Model C Probabilities")
```

Table 3: Model C Probabilities

x	Px
1	0.48
2	0.24
3	0.16
4	0.12

Model C is biased toward the lower numbers, slightly more so than Model B was toward the higher numbers.

5.1

5.2