|  |  |  |
| --- | --- | --- |
| MATH 1350 | **Statistics for Information Technology** |  |

**Lab # 3 – Boxplots and Probability Basics**

Answer/Grading Sheet

| **Step:** | **Answer (if requested)** | **Mark** |  |
| --- | --- | --- | --- |
| 5 | * Load the mosaic library |  | /1 |
| 7 | * Import commands for the data file |  | /1 |
| 10-11 | * Modified bwplot command that includes graph title option * Copy and paste the boxplot of all times here |  | /1  /1 |
| 13-14 | * Modified command for horizontally or vertically stacked boxplots, WITH axis labels and graph title * Copy and paste the boxplot of times by set here |  | /2  /1 |
| 15 | * Which set do you feel was faster? EXPLAIN.   By examination of the box plots, I would say B is only slightly faster. They both seems to be close, but B has more of their times at or above ~900 whereas Set A has a wider range. However, with the favstats cmd, it is shown that Set A has a higher average. |  | /2 |
| 17 | * Paste the mean payout value for the cointoss game here:     mean(payout)  [1] 0.504 |  | /1 |
| 18 | n <- 1:20000  cards <- sample(c(1,2,3,4,5,6,7,8,9,10,11,12,13), length(n),replace=TRUE)  dierolls <- sample(c(1,2,3,4,5,6), length(n),replace=TRUE)    payout <- 0  *#let a 0 represent a heads up coin, a 1 represent a tails up coin*  for (i in n) {    if (cards[i] < 5) {      payout[i]<- 5\*dierolls[i]    }    else {      payout [i] <- dierolls[i]    }  } |  | /4 |
| 19 | * Paste the mean payout value for the card & dieroll game here:   > mean(payout)  [1] 7.807135   * What is your estimate of the “break even” price to play my new game?   My estimate break even price would be around $7.8. |  | /1 |
| R script  Paste your R script here. Make sure that it contains ALL of the elements worth points listed above.  *# Lab 3*  *# Markus Afonso*  library(mosaic)  gametimes <- read.delim("C:/Users/Markus/OneDrive - BCIT/Desktop/Term2/MATH 1350 Statistics for IT/Week3/lab3.txt", comment.char="#")  bwplot(~Time,data=gametimes, main='Times Boxplot')  bwplot(Time~Set,data=gametimes, main='Times Boxplot', ylab='Set', xlab='Time')  favstats(Time~Set,data=gametimes)  *#Stage 2 - Probability Experiments in R*  n <- 1:20000  cointosses <- sample(c(0,1), length(n),replace=TRUE)  payout <- 0\*n  *#let a 0 represent a heads up coin, a 1 represent a tails up coin*  for (i in n) {    if (cointosses [i]==1) {      payout [i] <- 1    }    else {      payout [i] <- 0    }  }  mean(payout)  *## Cards*  n <- 1:20000  cards <- sample(c(1,2,3,4,5,6,7,8,9,10,11,12,13), length(n),replace=TRUE)  dierolls <- sample(c(1,2,3,4,5,6), length(n),replace=TRUE)    payout <- 0  *#let a 0 represent a heads up coin, a 1 represent a tails up coin*  for (i in n) {    if (cards[i] < 5) {      payout[i]<- 5\*dierolls[i]    }    else {      payout [i] <- dierolls[i]    }  }  mean(payout) | | | |
|  | Paper and Pencil problem #1 (this is just a space for your marks) |  | /3 |
|  | Paper and Pencil problem #2 |  | /2 |
|  | Paper and Pencil problem #3 |  | /3 |
|  | Paper and Pencil problem #4 |  | /3 |

Total /26