Internal Assessment 1

Makeup Test

ECON03SEC1
Department of Economics
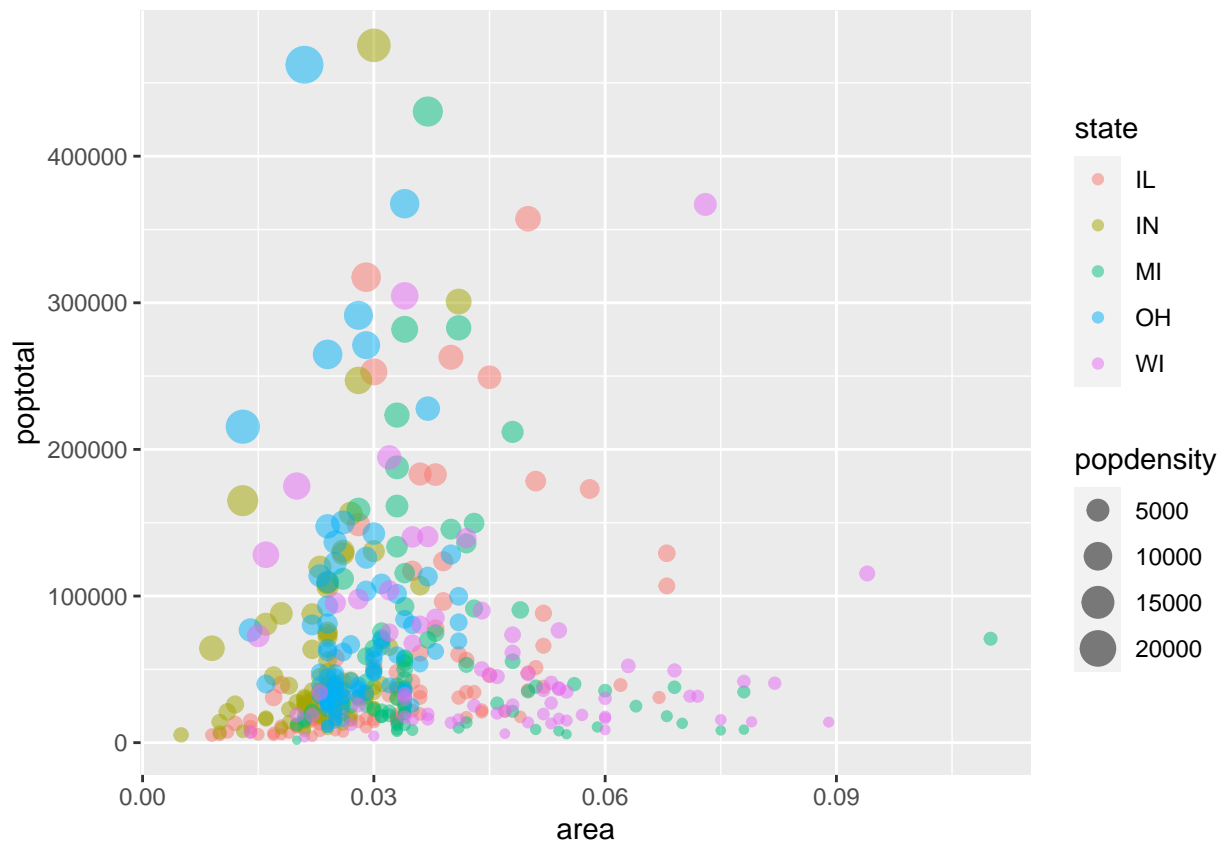## Presidency University, Kolkata
Full Marks: 30
14/12/2022

Answer the following questions: $[6 \times 5 = 30]$

1. Explain the following codes and their outputs.

```r
a2 <- matrix(1:9, nrow = 3)
colnames(a2) <- c("A", "B", "C")

a2[c(TRUE, FALSE, TRUE), c("B", "A")]
```

2. Using the `midwest` dataset in the `ggplot2` package, replicate the following plot.

3. Tidy and replicate the `fish_encounters` dataset in the `tidyr` package as given below.

```
## # A tibble: 5 x 12
##    fish  Release I80_1 Lisbon  Rstr Base_TD   BCE   BCW  BCE2  BCW2   MAE   MAW
##    <fct>   <int> <int>  <int> <int>   <int> <int> <int> <int> <int> <int> <int>
## 1 4842        1     1      1     1       1     1     1     1     1     1     1
## 2 4843        1     1      1     1       1     1     1     1     1     1     1
## 3 4844        1     1      1     1       1     1     1     1     1     1     1
## 4 4858        1     1      1     1       1     1     1     1     1     1     1
## 5 4861        1     1      1     1       1     1     1     1     1     1     1
```

4. Which specie has the longest and widest petal in the `iris` dataset in the base R `datasets` packages?

5. How many and which species have sepal length longer than their mean value.

```
iris %>%
  filter(Sepal.Length > mean(Sepal.Length)) %>%
  group_by(Species) %>%
  summarise(`Sepal.Length > mean(Sepal.Length)` = n())
```

```
## # A tibble: 2 x 2
##   Species     `Sepal.Length > mean(Sepal.Length)`
##   <fct>                                     <int>
## 1 versicolor                                   26
## 2 virginica                                    44
```

6. Which specie has the highest difference in their petal width.

```
iris %>%
  group_by(Species) %>%
  summarise(sd = sd(Petal.Width))
```

```
## # A tibble: 3 x 2
##   Species       sd
##   <fct>      <dbl>
## 1 setosa     0.105
## 2 versicolor 0.198
## 3 virginica  0.275
```