Internal Assessment 2

ECON03SEC1
Department of Economics
Presidency University, Kolkata
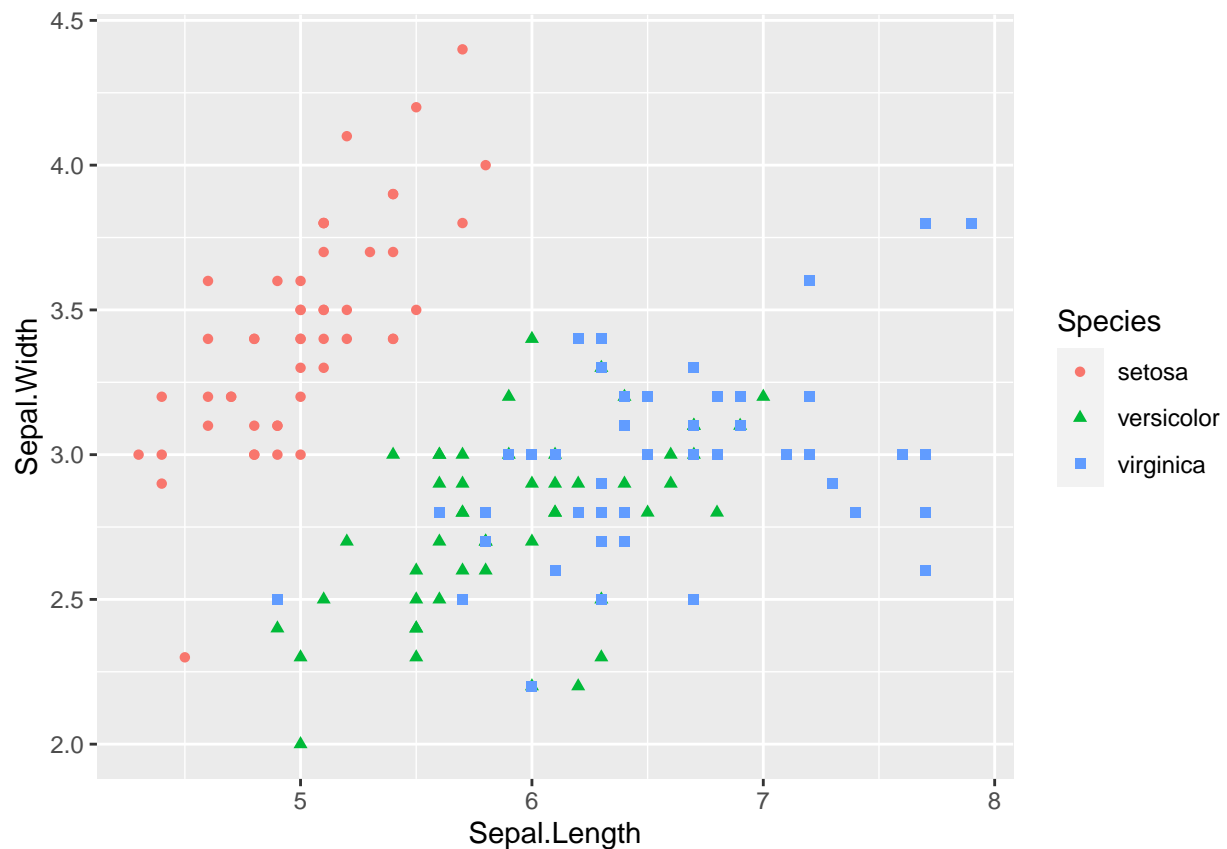Full Marks: 40
21/01/2022

Group 1 (R)

Answer all of the following questions. $[4 \times 5 = 20]$

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. In the `starwars` dataset in the `dplyr` package, which species has the most number of blue eye colour?

3. Using the `iris` dataset in the base R `datasets` package, replicate the following plot.
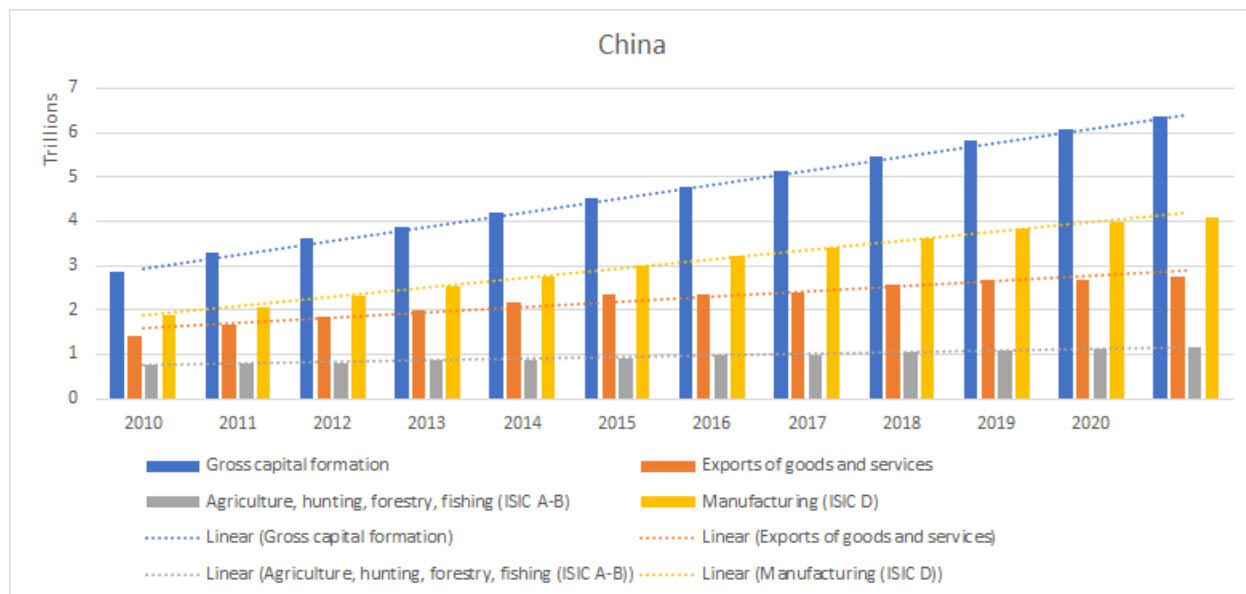
4. Tidy and replicate the `who` dataset in the `tidyr` package as given below.

```
## # A tibble: 56 x 6
##    country iso2  iso3   year Diagnosis    Value
##    <chr>   <chr> <chr> <int> <chr>        <int>
##  1 India   IN    IND    2002 new_sp_m3544 55829
##  2 India   IN    IND    2002 new_sp_m2534 54719
##  3 India   IN    IND    2002 new_sp_m4554 44532
##  4 India   IN    IND    2002 new_sp_m1524 39923
##  5 India   IN    IND    2002 new_sp_f2534 31946
##  6 India   IN    IND    2002 new_sp_f1524 28573
##  7 India   IN    IND    2002 new_sp_m5564 28199
##  8 India   IN    IND    2002 new_sp_f3544 21378
##  9 India   IN    IND    2002 new_sp_m65   14960
## 10 India   IN    IND    2002 new_sp_f4554 13233
## # ... with 46 more rows
```

Group 2 (Excel)

Answer all of the following questions. $[4 \times 5 = 20]$

1. Using the `GDP.xlsx` data replicate the following plot.

2. Calculate the mean *mpg* (miles per gallon) of the cars with 6 and 4 cylinders in `mtcars.xlsx` dataset?
3. How many missing values are there in total in the `GDP.xlsx` dataset? Find how many countries are listed in the data without using the filter option?
4. Suppose that the firm's production function is $Q = F(K, L) = 50K^{0.5}L^{0.5}$. Suppose, too, that the price of labour w=5 and the price of capital r=20. What is the cost minimising input bundle if the firm wants to produce 1,000 units per year?