```r
library(ggplot2)
library(tibble)
```

```r
#Question 2

set.seed(301)
generate_data <- function(i = 1000) {
  data <- tibble( party = sample(0:1, i, replace = TRUE),
      age = sample(c('18-24', '25-34', '35-44', '45-54', '55+'), i, replace = TRUE),
      gender = sample(c('Male', 'Female'), i, replace = TRUE),
      income = sample(c('Low', 'Medium', 'High'), i, replace = TRUE),
      education = sample(c('High School', 'Bachelor', 'Master', 'Doctorate'), i, replace =
      )
return(data)
}

sim_data <- generate_data(1000)
sim_data
```

```
# A tibble: 1,000 x 5
   party age   gender income education
   <int> <chr> <chr>  <chr>  <chr>
 1     1 18-24 Male   Medium High School
 2     1 55+   Female Medium High School
 3     0 45-54 Female Low    Doctorate
 4     0 35-44 Female High   High School
 5     0 45-54 Male   Medium High School
 6     0 25-34 Male   High   Bachelor
 7     0 45-54 Female Medium Master
 8     1 55+   Male   Low    Bachelor
 9     1 45-54 Male   Medium Doctorate
10     0 55+   Male   Low    Doctorate
# i 990 more rows
```

```r
set.seed(302)
generate_data(1000)
```

```
# A tibble: 1,000 x 5
   party age   gender income education
   <int> <chr> <chr>  <chr>  <chr>
```

```
 1     0 45-54 Female Medium High School
 2     0 55+   Female Medium Master
 3     1 35-44 Male   High   Doctorate
 4     1 18-24 Male   Medium High School
 5     1 45-54 Female Low    Master
 6     0 35-44 Female Low    Bachelor
 7     1 35-44 Male   High   Master
 8     0 55+   Female High   Doctorate
 9     1 45-54 Male   Medium Doctorate
10     0 35-44 Female High   High School
# i 990 more rows
```

```
set.seed(303)
generate_data(1000)
```

```
# A tibble: 1,000 x 5
   party age   gender income education
   <int> <chr> <chr>  <chr>  <chr>
 1     0 55+   Male   High   Master
 2     0 18-24 Male   High   Master
 3     0 25-34 Male   High   Doctorate
 4     1 55+   Male   High   High School
 5     1 35-44 Female Low    Bachelor
 6     0 18-24 Female Medium Doctorate
 7     1 45-54 Female High   Doctorate
 8     0 45-54 Female Low    Bachelor
 9     0 25-34 Male   High   Bachelor
10     0 18-24 Male   High   Bachelor
# i 990 more rows
```

```
set.seed(304)
generate_data(1000)
```

```
# A tibble: 1,000 x 5
   party age   gender income education
   <int> <chr> <chr>  <chr>  <chr>
 1     0 55+   Male   High   Master
 2     1 25-34 Female Medium High School
 3     1 25-34 Male   Medium Master
 4     0 35-44 Female High   Doctorate
```

```
 5     0 25-34 Male   Medium Master
 6     0 35-44 Male   High   Master
 7     0 35-44 Male   High   Bachelor
 8     1 25-34 Male   Low    High School
 9     1 55+   Female Low    Bachelor
10     1 45-54 Female Medium Bachelor
# i 990 more rows
```

```
set.seed(305)
generate_data(1000)
```

```
# A tibble: 1,000 x 5
   party age   gender income education
   <int> <chr> <chr>  <chr>  <chr>
 1     1 18-24 Male   Medium Doctorate
 2     0 35-44 Male   Medium Doctorate
 3     0 18-24 Female High   Doctorate
 4     1 45-54 Male   Medium Bachelor
 5     0 18-24 Female High   Master
 6     1 55+   Female Low    Doctorate
 7     1 35-44 Female Medium Master
 8     1 55+   Male   High   Doctorate
 9     1 35-44 Male   High   Bachelor
10     1 25-34 Female Low    Master
# i 990 more rows
```

```
set.seed(306)
generate_data(1000)
```

```
# A tibble: 1,000 x 5
   party age   gender income education
   <int> <chr> <chr>  <chr>  <chr>
 1     0 18-24 Female Low    Doctorate
 2     0 25-34 Male   Low    Bachelor
 3     0 18-24 Male   High   Bachelor
 4     0 45-54 Male   Low    Bachelor
 5     0 25-34 Female Medium Doctorate
 6     1 55+   Male   Low    High School
 7     0 25-34 Female Low    Master
 8     0 18-24 Male   Low    Bachelor
```

```
 9     0 55+   Male   High   Bachelor
10     0 55+   Female Low    Master
# i 990 more rows
```

```r
set.seed(307)
generate_data(1000)
```

```
# A tibble: 1,000 x 5
   party age   gender income education
   <int> <chr> <chr>  <chr>  <chr>
 1     1 18-24 Female Medium High School
 2     0 45-54 Male   Medium Doctorate
 3     1 18-24 Male   Low    Bachelor
 4     1 35-44 Male   High   High School
 5     1 35-44 Male   Low    Doctorate
 6     1 18-24 Female High   Master
 7     0 25-34 Female Low    Bachelor
 8     1 18-24 Female High   Doctorate
 9     1 45-54 Male   High   Bachelor
10     1 45-54 Male   Low    Master
# i 990 more rows
```

```r
set.seed(308)
generate_data(1000)
```

```
# A tibble: 1,000 x 5
   party age   gender income education
   <int> <chr> <chr>  <chr>  <chr>
 1     0 45-54 Female High   Bachelor
 2     1 55+   Male   Medium Doctorate
 3     1 55+   Male   Low    Bachelor
 4     1 55+   Male   Medium High School
 5     0 25-34 Female Low    Bachelor
 6     0 55+   Female Medium Master
 7     1 35-44 Male   High   Doctorate
 8     0 18-24 Female Medium High School
 9     1 45-54 Female Low    High School
10     1 55+   Male   Medium Doctorate
# i 990 more rows
```

```r
set.seed(309)
generate_data(1000)
```

```
# A tibble: 1,000 x 5
   party age   gender income education
   <int> <chr> <chr>  <chr>  <chr>
 1     1 55+   Female Medium High School
 2     1 18-24 Male   Low    Bachelor
 3     0 45-54 Male   Medium Master
 4     0 35-44 Female High   High School
 5     1 18-24 Male   High   Bachelor
 6     1 18-24 Female Low    Master
 7     1 45-54 Male   Low    Bachelor
 8     0 45-54 Female High   Doctorate
 9     0 45-54 Female Low    Master
10     0 55+   Female Low    Bachelor
# i 990 more rows
```

```r
set.seed(300)
generate_data(1000)
```

```
# A tibble: 1,000 x 5
   party age   gender income education
   <int> <chr> <chr>  <chr>  <chr>
 1     1 55+   Female High   Master
 2     1 35-44 Male   Low    Bachelor
 3     1 35-44 Female High   Doctorate
 4     0 18-24 Male   High   Master
 5     1 18-24 Male   Medium Master
 6     0 25-34 Male   Medium Master
 7     0 45-54 Male   Medium Bachelor
 8     1 35-44 Female High   High School
 9     0 35-44 Male   High   Master
10     0 35-44 Female High   Doctorate
# i 990 more rows
```