MBTI dataset transformation and analysis

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Učitavanje i uređivanje podatkovnog skupa

Učitavanje i proučavanje podatkovnog skupa

Učitavamo podatkovni skup u varijablu "dataset".

```
dataset <- read_csv("../data/MBTI.csv")
```

Proučavamo podatkovni skup kako bi ga znali urediti na način da nam je lakše raditi s njim kasnije.

```
head(dataset)
```

```
## # A tibble: 6 x 21
##    ...1 `S No`   AGE HEIGHT WEIGHT SEX    `ACTIVITY LEVEL` `PAIN 1` `PAIN 2`
##   <dbl>  <dbl> <dbl>  <dbl>  <dbl> <chr>  <chr>               <dbl>    <dbl>
## 1     0      1    53     62    125 Female Low                   0        0
## 2     1      2    52     69    157 Male   High                  7        8
## 3     2      3    30     69    200 Male   High                  0        0
## 4     3      4    51     66    175 Male   Moderate              9.5      9.5
## 5     4      5    45     63    199 Female Moderate              4        5
## 6     5      6    68     74    182 Male   Low                   0        2.5
## # i 12 more variables: `PAIN 3` <dbl>, `PAIN 4` <dbl>, MBTI <chr>, E <dbl>,
## #   I <dbl>, S <dbl>, N <dbl>, T <dbl>, F <dbl>, J <dbl>, P <dbl>,
## #   POSTURE <chr>
```

```
tail(dataset)
```

```
## # A tibble: 6 x 21
##    ...1 `S No`   AGE HEIGHT WEIGHT SEX    `ACTIVITY LEVEL` `PAIN 1` `PAIN 2`
##   <dbl>  <dbl> <dbl>  <dbl>  <dbl> <chr>  <chr>               <dbl>    <dbl>
## 1    91     92    16     69    130 Female Moderate                5        0
## 2    92     93    16     58    100 Male   Moderate                0        0
## 3    93     94    45     62    134 Female Moderate                0        4
## 4    94     95    43     69    188 Male   Moderate                2        0
## 5    95     96    28     67    180 Female Low                     0        0
## 6    96     97    43     69    188 Male   Moderate                4        0
## # i 12 more variables: `PAIN 3` <dbl>, `PAIN 4` <dbl>, MBTI <chr>, E <dbl>,
## #   I <dbl>, S <dbl>, N <dbl>, T <dbl>, F <dbl>, J <dbl>, P <dbl>,
## #   POSTURE <chr>
```

```r
glimpse(dataset)
```

```
## Rows: 97
## Columns: 21
## $ ...1              <dbl> 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15,~
## $ `S No`            <dbl> 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16~
## $ AGE               <dbl> 53, 52, 30, 51, 45, 68, 62, 65, 66, 58, 61, 33, 48, 5~
## $ HEIGHT            <dbl> 62, 69, 69, 66, 63, 74, 68, 61, 67, 69, 67, 62, 64, 6~
## $ WEIGHT            <dbl> 125, 157, 200, 175, 199, 182, 263, 143, 180, 165, 210~
## $ SEX               <chr> "Female", "Male", "Male", "Male", "Female", "Male", "~
## $ `ACTIVITY LEVEL`  <chr> "Low", "High", "High", "Moderate", "Moderate", "Low",~
## $ `PAIN 1`          <dbl> 0.0, 7.0, 0.0, 9.5, 4.0, 0.0, 7.0, 0.0, 0.5, 0.0, 5.0~
## $ `PAIN 2`          <dbl> 0.0, 8.0, 0.0, 9.5, 5.0, 2.5, 10.0, 9.0, 3.5, 7.5, 0.~
## $ `PAIN 3`          <dbl> 0.0, 5.0, 0.0, 9.5, 2.0, 1.5, 10.0, 5.0, 0.5, 7.0, 0.~
## $ `PAIN 4`          <dbl> 0.0, 3.0, 0.0, 1.5, 2.0, 0.0, 10.0, 10.0, 9.5, 3.0, 9~
## $ MBTI              <chr> "ESFJ", "ISTJ", "ESTJ", "ISTJ", "ENFJ", "ISFP", "ISTP~
## $ E                 <dbl> 0.9084579, -0.6045853, 0.4727891, -0.6045853, 0.34875~
## $ I                 <dbl> -1.0968036, 0.4727891, -0.6045853, 0.4727891, -0.4727~
## $ S                 <dbl> -0.06968492, -0.28221615, -0.13971030, 0.21042839, 0.~
## $ N                 <dbl> -0.6744898, -0.4307273, -0.5894558, -1.0853249, -0.96~
## $ T                 <dbl> -0.3186394, 1.1503494, 0.3186394, 0.1046335, -0.31863~
## $ F                 <dbl> 0.1046335, -1.1503494, -0.3186394, -0.1046335, 0.3186~
## $ J                 <dbl> 0.78103381, 0.16421078, 0.05451891, 0.93881432, 0.511~
## $ P                 <dbl> -0.93881432, -0.27592106, -0.16421078, -1.12433823, -~
## $ POSTURE           <chr> "A", "B", "A", "D", "A", "D", "B", "D", "C", "D", "B"~
```

Uređivanje podataka podatkovnog skupa

Faktoriziramo određene stupce "SEX", "ACTIVITY LEVEL", "MBTI", "POSTURE" kako bismo kasnije mogli lakše grupirati podatke i bolje ih analizirati

```r
dataset$SEX <- as.factor(dataset$SEX)
dataset$`ACTIVITY LEVEL` <- as.factor(dataset$`ACTIVITY LEVEL`)
dataset$`ACTIVITY LEVEL` <- factor(dataset$`ACTIVITY LEVEL`, levels = c("Low", "Moderate", "High"))
dataset$MBTI <- as.factor(dataset$MBTI)
dataset$POSTURE <- as.factor(dataset$POSTURE)
dataset$POSTURE <- factor(dataset$POSTURE, levels = c("A", "B", "C", "D"),
                          labels = c("idealno", "kifoza/lordoza", "ravna leđa", "nagnuto"))
```

Uklonit ćemo prva dva stupca podatkovnog skupa obzirom da su jedinstveni identifikatori te nam ne pomažu u analizi.

```r
dataset$...1 <- NULL
dataset$`S No` <- NULL
```

Preimenovat ćemo stupce "ACTIVITY LEVEL", "PAIN 1", "PAIN 2", "PAIN 3" i "PAIN 4" radi jednostavnosti.

```r
colnames(dataset)[5] <- "ACTIVITY_LEVEL"
colnames(dataset)[6] <- "PAIN_1"
colnames(dataset)[7] <- "PAIN_2"
colnames(dataset)[8] <- "PAIN_3"
colnames(dataset)[9] <- "PAIN_4"
```

Ovako naš podatkovni skup izgleda nakon uređivanja njegovih podataka.

```
head(dataset)
```

```
## # A tibble: 6 x 19
##     AGE HEIGHT WEIGHT SEX    ACTIVITY_LEVEL PAIN_1 PAIN_2 PAIN_3 PAIN_4 MBTI
##   <dbl>  <dbl>  <dbl> <fct>  <fct>           <dbl>  <dbl>  <dbl>  <dbl> <fct>
## 1    53     62    125 Female Low               0      0      0      0   ESFJ
## 2    52     69    157 Male   High              7      8      5      3   ISTJ
## 3    30     69    200 Male   High              0      0      0      0   ESTJ
## 4    51     66    175 Male   Moderate          9.5    9.5    9.5    1.5 ISTJ
## 5    45     63    199 Female Moderate          4      5      2      2   ENFJ
## 6    68     74    182 Male   Low               0      2.5    1.5    0   ISFP
## # i 9 more variables: E <dbl>, I <dbl>, S <dbl>, N <dbl>, T <dbl>, F <dbl>,
## #   J <dbl>, P <dbl>, POSTURE <fct>
```

```
tail(dataset)
```

```
## # A tibble: 6 x 19
##     AGE HEIGHT WEIGHT SEX    ACTIVITY_LEVEL PAIN_1 PAIN_2 PAIN_3 PAIN_4 MBTI
##   <dbl>  <dbl>  <dbl> <fct>  <fct>           <dbl>  <dbl>  <dbl>  <dbl> <fct>
## 1    16     69    130 Female Moderate            5      0      5      7 ENFJ
## 2    16     58    100 Male   Moderate            0      0      0      3 ESTP
## 3    45     62    134 Female Moderate            0      4      0      0 ESFJ
## 4    43     69    188 Male   Moderate            2      0      0      0 ENFP
## 5    28     67    180 Female Low                 0      0      0      0 ESFJ
## 6    43     69    188 Male   Moderate            4      0      0      0 ENFP
## # i 9 more variables: E <dbl>, I <dbl>, S <dbl>, N <dbl>, T <dbl>, F <dbl>,
## #   J <dbl>, P <dbl>, POSTURE <fct>
```

```
glimpse(dataset)
```

```
## Rows: 97
## Columns: 19
## $ AGE            <dbl> 53, 52, 30, 51, 45, 68, 62, 65, 66, 58, 61, 33, 48, 57,~
## $ HEIGHT         <dbl> 62, 69, 69, 66, 63, 74, 68, 61, 67, 69, 67, 62, 64, 68,~
## $ WEIGHT         <dbl> 125, 157, 200, 175, 199, 182, 263, 143, 180, 165, 210, ~
## $ SEX            <fct> Female, Male, Male, Male, Female, Male, Male, Female, M~
## $ ACTIVITY_LEVEL <fct> Low, High, High, Moderate, Moderate, Low, Low, Low, Low~
## $ PAIN_1         <dbl> 0.0, 7.0, 0.0, 9.5, 4.0, 0.0, 7.0, 0.0, 0.5, 0.0, 5.0, ~
## $ PAIN_2         <dbl> 0.0, 8.0, 0.0, 9.5, 5.0, 2.5, 10.0, 9.0, 3.5, 7.5, 0.0,~
## $ PAIN_3         <dbl> 0.0, 5.0, 0.0, 9.5, 2.0, 1.5, 10.0, 5.0, 0.5, 7.0, 0.0,~
## $ PAIN_4         <dbl> 0.0, 3.0, 0.0, 1.5, 2.0, 0.0, 10.0, 10.0, 9.5, 3.0, 9.0~
## $ MBTI           <fct> ESFJ, ISTJ, ESTJ, ISTJ, ENFJ, ISFP, ISTP, ESTJ, ESFJ, I~
## $ E              <dbl> 0.9084579, -0.6045853, 0.4727891, -0.6045853, 0.3487557~
## $ I              <dbl> -1.0968036, 0.4727891, -0.6045853, 0.4727891, -0.472789~
## $ S              <dbl> -0.06968492, -0.28221615, -0.13971030, 0.21042839, 0.13~
## $ N              <dbl> -0.6744898, -0.4307273, -0.5894558, -1.0853249, -0.9674~
## $ T              <dbl> -0.3186394, 1.1503494, 0.3186394, 0.1046335, -0.3186394~
## $ F              <dbl> 0.1046335, -1.1503494, -0.3186394, -0.1046335, 0.318639~
## $ J              <dbl> 0.78103381, 0.16421078, 0.05451891, 0.93881432, 0.51193~
## $ P              <dbl> -0.93881432, -0.27592106, -0.16421078, -1.12433823, -0.~
## $ POSTURE        <fct> idealno, kifoza/lordoza, idealno, nagnuto, idealno, nag~
```

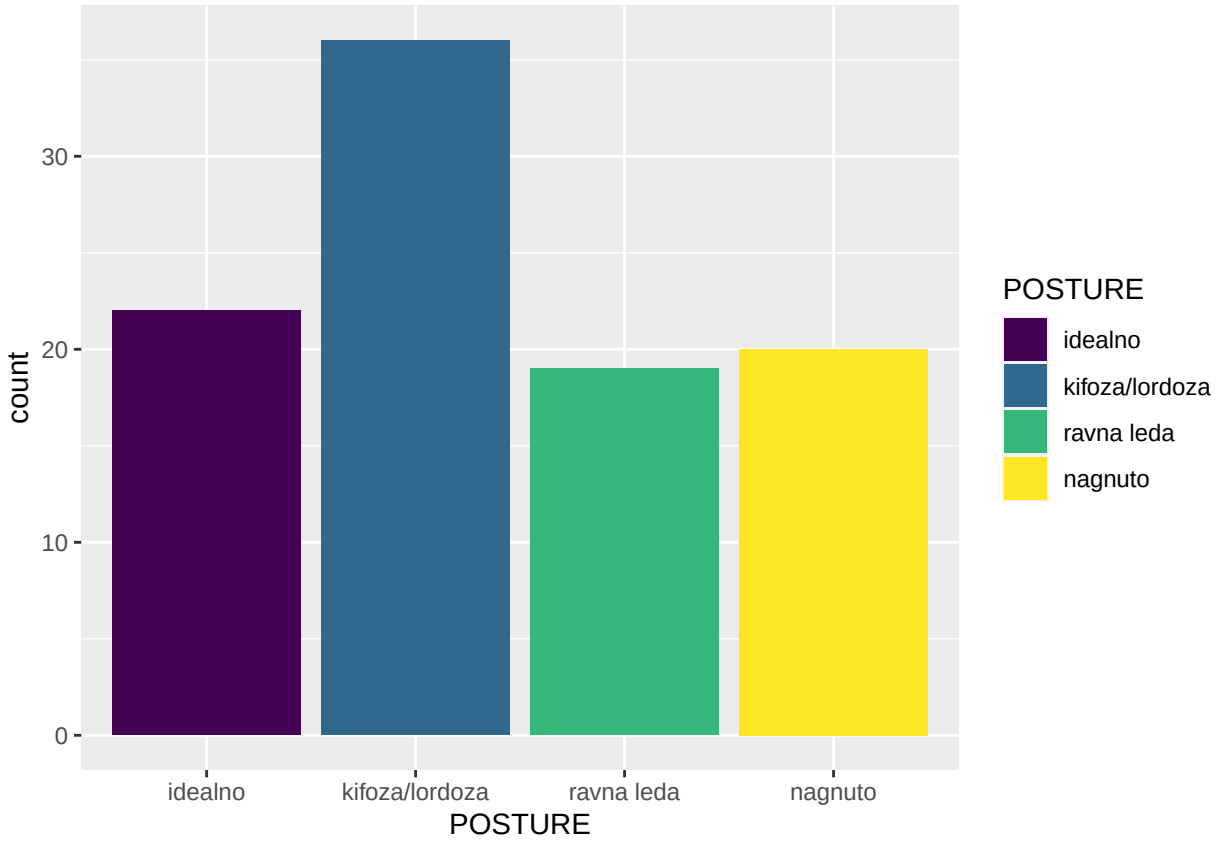
Analiza podatkovnog skupa

Veza između tipa ličnosti i načina držanja

U našem podatkovnom skupu imamo stupce "POSTURE" i "MBTI".

Stupac "POSTURE" poprima vrijednosti:

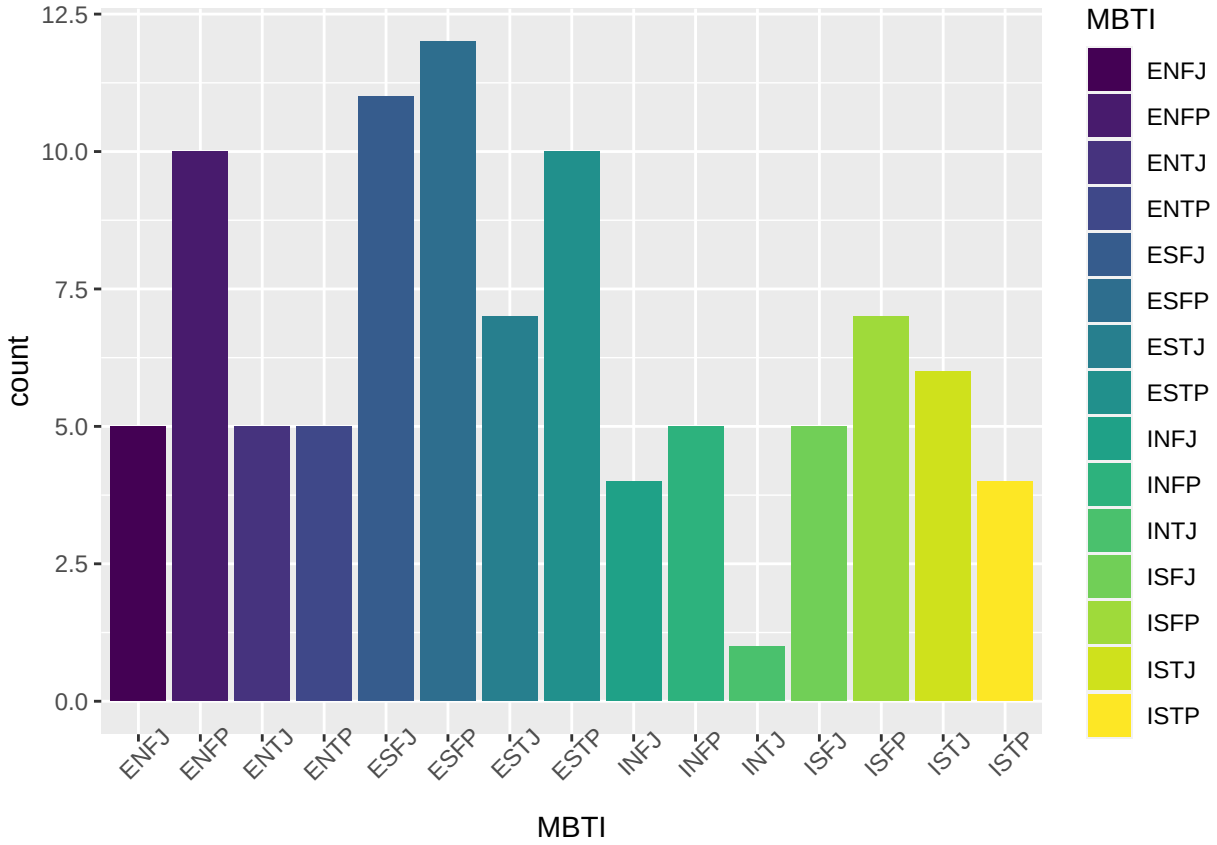
```
ggplot(dataset, aes(x = POSTURE, fill = POSTURE)) + geom_bar() +
  scale_fill_ordinal()
```



Imamo 4 klase načina držanja.

Stupac "MBTI" poprima vrijednosti:

```
ggplot(dataset, aes(x = MBTI, fill = MBTI)) + geom_bar() +
  scale_fill_ordinal() +
  theme(axis.text.x = element_text(angle = 45))
```

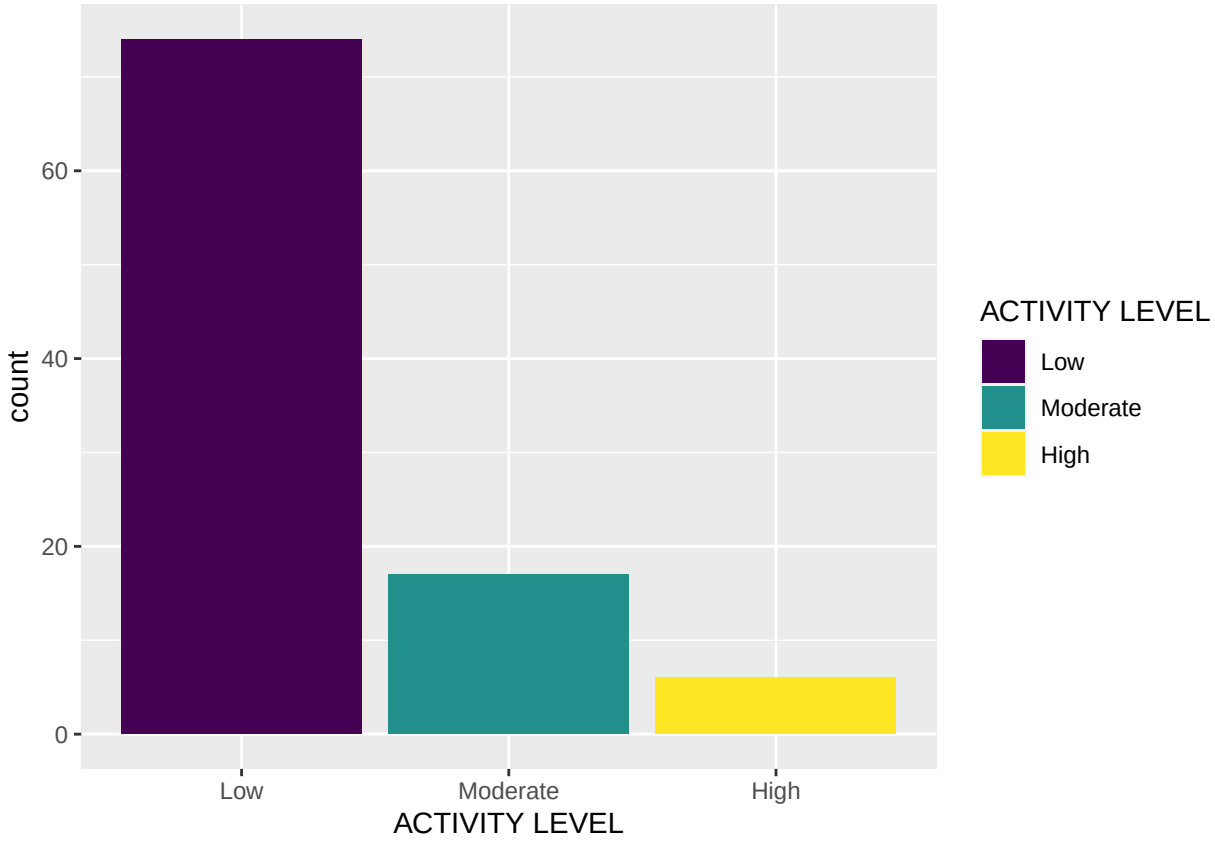


Razlikujemo 16 vrsta tipova osobnosti.

Veza između fizičke aktivnosti i razine ekstrovertiranosti

Fizičku aktivnost nam predstavlja stupac "ACTIVITY_LEVEL"

```
ggplot(dataset, aes(x = ACTIVITY_LEVEL, fill = ACTIVITY_LEVEL)) + geom_bar() +
  scale_fill_ordinal() +
  labs(x = "ACTIVITY LEVEL", fill = "ACTIVITY LEVEL")
```



Razlikujemo 3 razine fizičke aktivnosti.

Razlika u visini/težini obzirom na tip ličnosti