

Workshop 4 Solutions

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1. Data practice

In class we imported the survey data using the `read.table()` function.

This is the code we used:

```
survey <- read.table("survey_data.csv", header=TRUE, sep=",")
```

(a) How many survey respondents are from MISM or Other?

```
sum(survey[["Program"]] == "MISM" | survey[["Program"]] == "Other")
```

```
## [1] 16
```

(b) What % of survey respondents are from PPM?

```
100 * sum(survey[["Program"]] == "PPM") / nrow(survey)
```

```
## [1] 48.3871
```

2. Index practice

(a) Use `$` notation to pull the `OperatingSystem` column from the survey data

```
survey$OperatingSystem
```

```
## [1] Windows Windows Windows Windows Windows Mac OS X Mac OS X
## [8] Windows Mac OS X Windows Mac OS X Windows Mac OS X Mac OS X
## [15] Windows Mac OS X Windows Mac OS X Windows Windows Mac OS X
## [22] Windows Windows Mac OS X Mac OS X Mac OS X Mac OS X Windows
## [29] Mac OS X Windows Windows
## Levels: Mac OS X Windows
```

(b) Do the same thing with `[,]` notation, referring to `OperatingSystem` by name

```
survey[, "OperatingSystem"]
```

```
## [1] Windows Windows Windows Windows Windows Mac OS X Mac OS X
## [8] Windows Mac OS X Windows Mac OS X Windows Mac OS X Mac OS X
## [15] Windows Mac OS X Windows Mac OS X Windows Windows Mac OS X
## [22] Windows Windows Mac OS X Mac OS X Mac OS X Mac OS X Windows
## [29] Mac OS X Windows Windows
## Levels: Mac OS X Windows
```

(c) Repeat part (b), this time referring to `OperatingSystem` by column number

```
survey[, 3]
```

##	[1]	Never used	Basic competence	Basic competence
##	[4]	Installed on machine	Never used	Never used
##	[7]	Never used	Never used	Never used
##	[10]	Never used	Installed on machine	Never used
##	[13]	Never used	Never used	Never used
##	[16]	Never used	Installed on machine	Never used
##	[19]	Never used	Never used	Installed on machine
##	[22]	Never used	Never used	Never used
##	[25]	Never used	Installed on machine	Never used
##	[28]	Installed on machine	Never used	Never used
##	[31]	Installed on machine		
##	Levels: Basic competence Installed on machine Never used			