## Using Mosaic in Section 5.5

First, make sure you have checked the "mosaic" and mosaicData" boxes in RStudio under the tab, "Packages".

Environment story				00	
Files	iles Plots Packager Help Viewer				
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	Name	Description	Version		
	minea	Derivative-free optimization algorithms by quadratic approximation	1.2.4	٢	1
~	mosai	Project MOSAIC Statistics and Mathematics Teaching Utilities	0.10.0	0	
•	mosaicData	Project MOSAIC (mosaic-web.org) data sets	0.9.1	0	
	munsell	Munsell colour system	0.4.2	0	
	nloptr	R interface to NLopt	1.0.4	0	
	pbkrtest	Parametric bootstrap and Kenward- Roger-based methods for mixed model comparison	0.4-2	0	
	plyr	Tools for Splitting, Applying and Combining Data	1.8.3	0	
	proto	Prototype object-based programming	0.3-10	٢	
	quantreg	Quantile Regression	5.18	0	
	R6	Classes with Reference Semantics	2.1.1	0	
	RColorBrewer	ColorBrewer Palettes	1.1-2	0	

Let's use the data from CoolingWater within mosaic.

Let time = explanatory variable and temp = response variable.

- To make the scatter plot.
- > plot(CoolingWater\$time,CoolingWater\$temp)

• To find the LSRL. *Do either command*.

```
> lm(temp~time,data=CoolingWater)
Call:
lm(formula = temp ~ time, data = CoolingWater)
Coefficients:
(Intercept) time
    64.2766 -0.2164
> lm(CoolingWater$temp~CoolingWater$time)
Call:
lm(formula = CoolingWater$temp ~ CoolingWater$time)
Coefficients:
    (Intercept) CoolingWater$time
    64.2766 -0.2164
```

• To find the correlation. *Do either command*.

```
> cor(time,temp,data=CoolingWater)
[1] -0.8820935
> cor(CoolingWater$time,CoolingWater$temp)
[1] -0.8820935
```

- To find the residuals. Do either command.
- > resid(lm(temp~time,data=CoolingWater))
- To plot the explanatory and residuals.
- > plot(CoolingWater\$time, resid(lm(CoolingWater\$temp~CoolingWater\$time)))