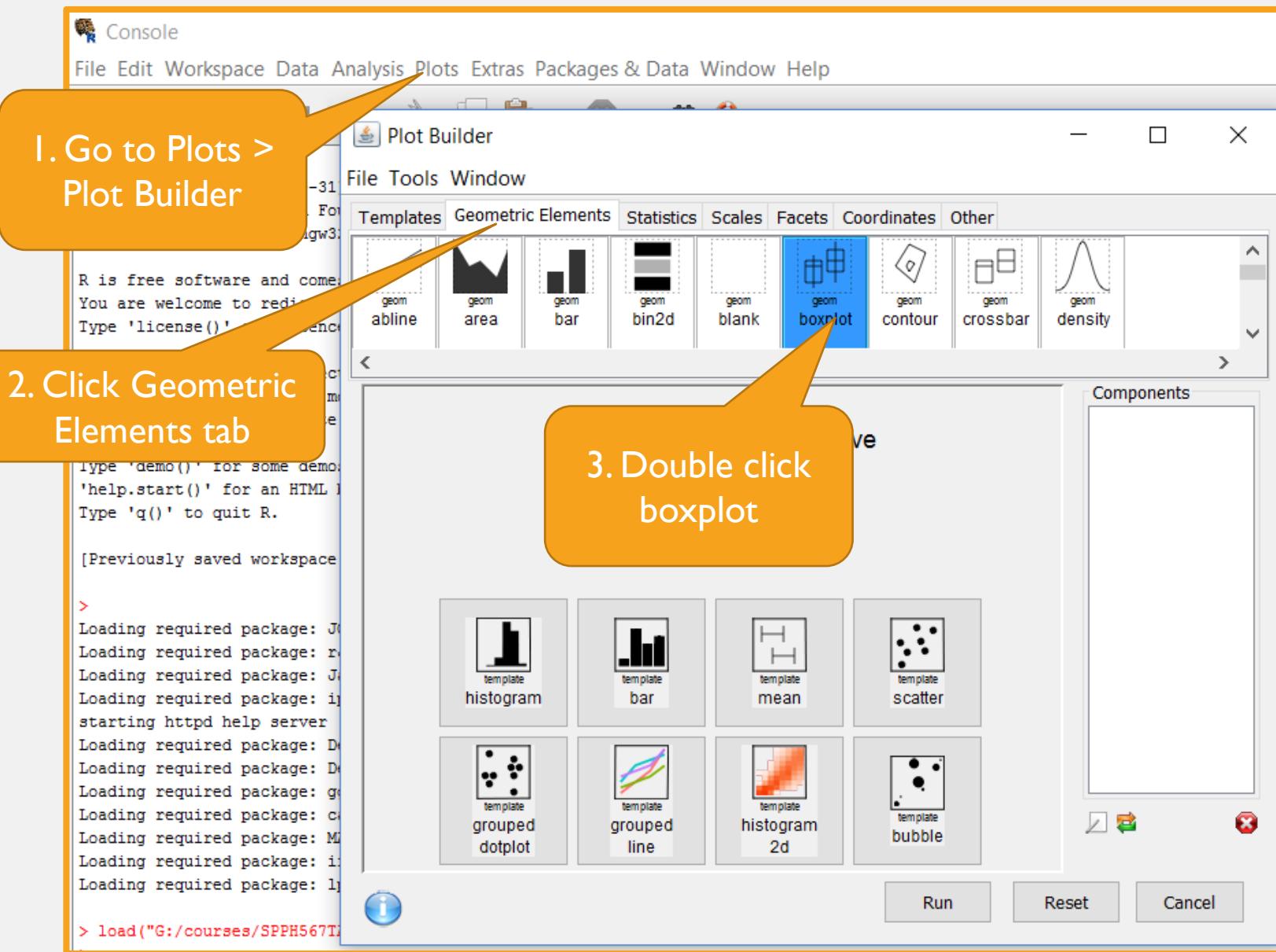


SPPH567 TUTORIAL III

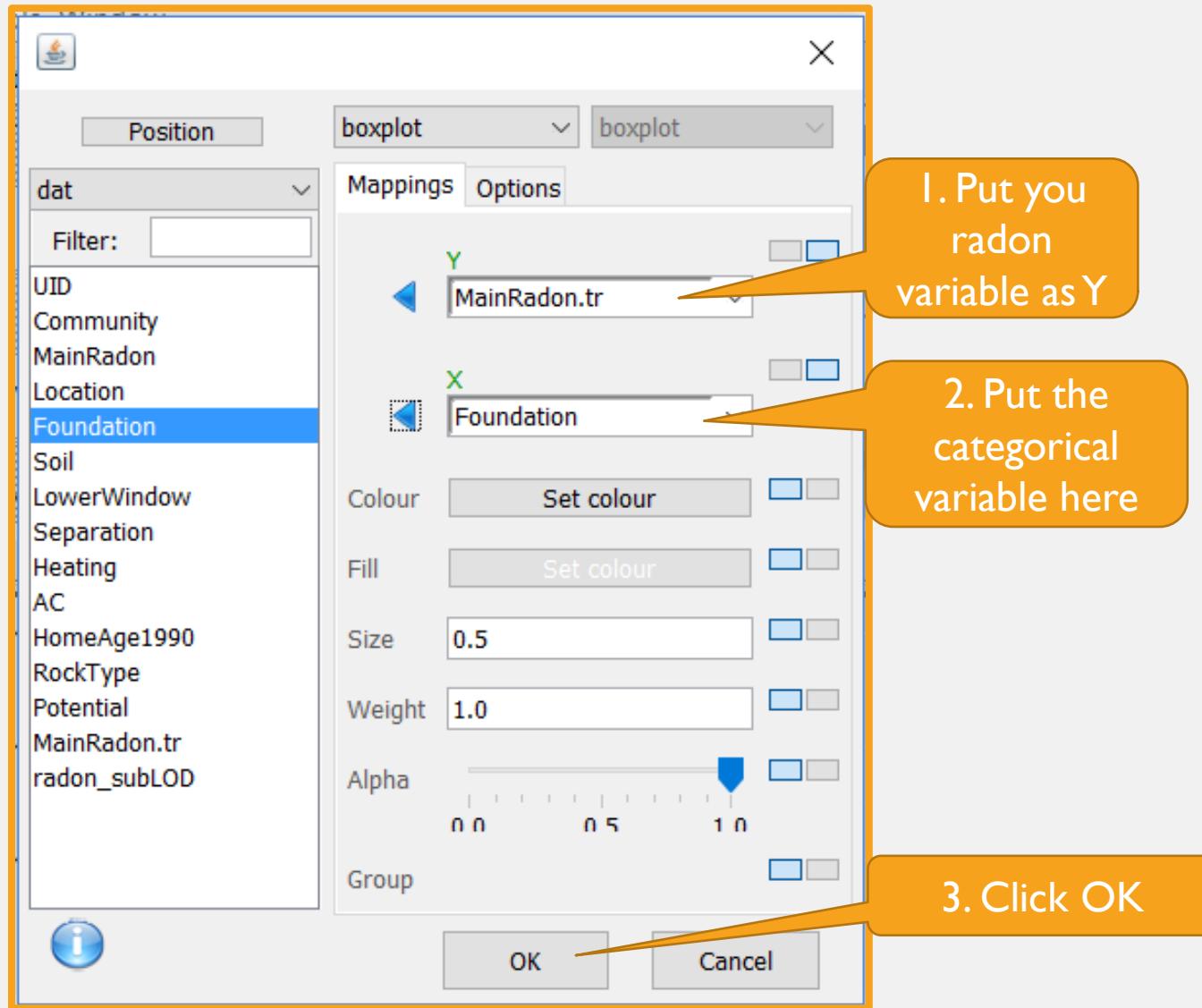
TODAY'S TASKS

- Make side-by-side boxplots
- Calculate grouped summary statistics
- Do t-test
- Do simple linear regression

MAKE SIDE-BY-SIDE BOXPLOT - I



MAKE SIDE-BY-SIDE BOXPLOT - 2



MAKE SIDE-BY-SIDE BOXPLOT - 2

The screenshot shows the Plot Builder window with the 'Geometric Elements' tab selected. The 'boxplot' icon is highlighted. Below, three boxplots are displayed for categories 'Other', 'Poured', and 'NA'. The 'Other' category has a median of 4.0, an IQR from 3.2 to 4.6, and whiskers extending from approximately 2.8 to 6.4, with one outlier at 6.9. The 'Poured' category has a median of 4.0, an IQR from 3.0 to 4.6, and whiskers extending from 2.8 to 6.4, with multiple outliers between 6.4 and 7.2. The 'NA' category has a median of 3.7, an IQR from 3.0 to 4.4, and whiskers extending from 2.8 to 5.1.

File Tools Window

Templates Geometric Elements Statistics Scales Facets Coordinates Other

geom abline geom area geom bar geom bin2d geom blank geom boxplot geom contour geom crossbar geom density

MainRaddn.tr

Components

I. Preview the boxplot
(there will be an extra level for NA)

2. Click Run

Run Reset Cancel

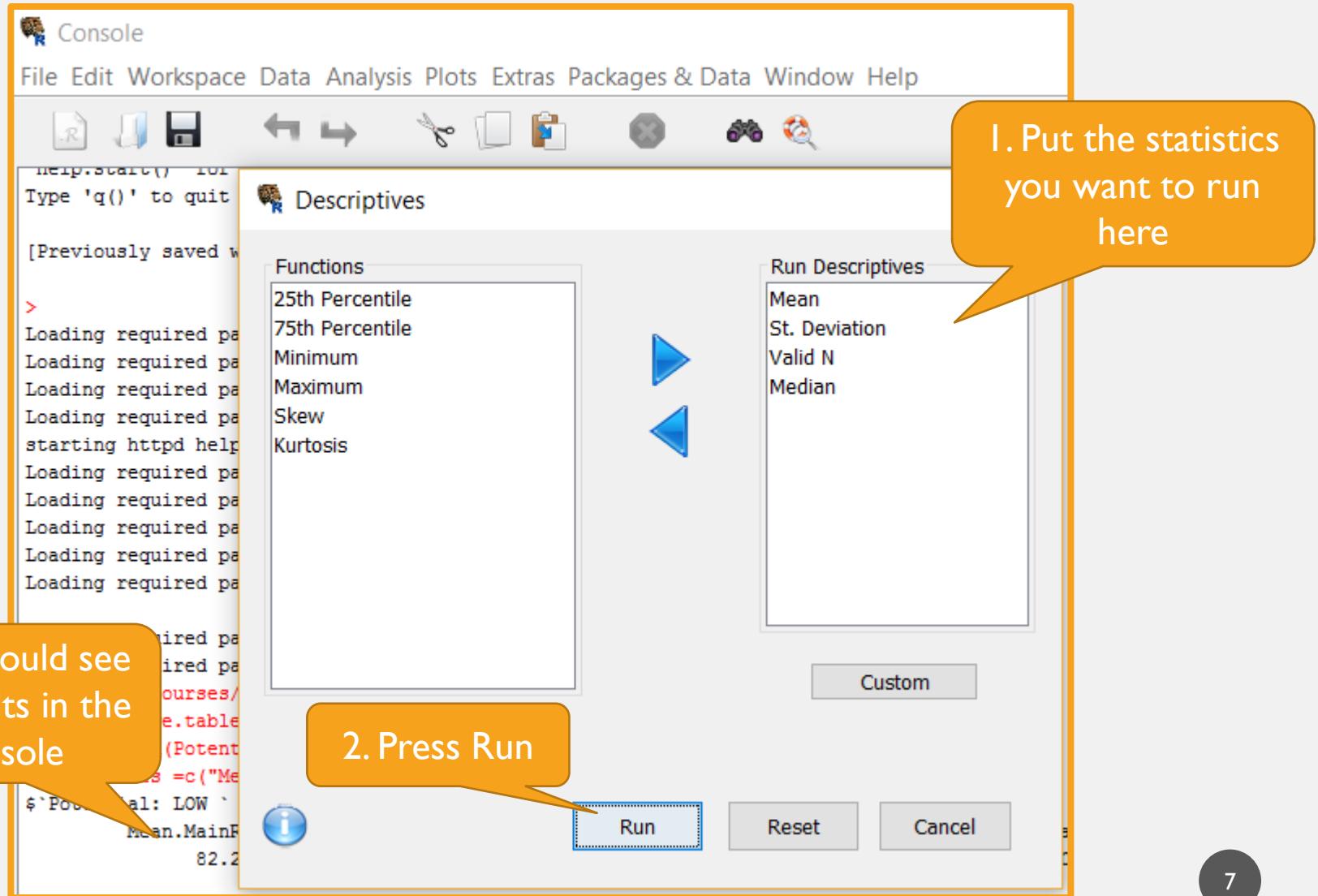
5

GROUP SUMMARY STATISTICS -- I

The screenshot shows the RStudio interface with the 'Descriptives' dialog box open. The console window on the left displays R code and its output, including the loading of datasets and the execution of the `descriptive.table` function. The 'Descriptives' dialog box has three main sections: 'Descriptives of:' containing 'MainRadon', 'Stratify By:' containing 'Potential', and a list of variables on the left: UID, Community, Location, Foundation, Soil, LowerWindow, Separation, Heating, AC, HomeAge1990, RockType, MainRadon.tr, and radon_subLOD. At the bottom are 'Continue', 'Reset', and 'Cancel' buttons.

1. Go to Analysis > Descriptives
2. Put the variable for calculating the statistics here
3. Put the variable for the grouping here
4. Press Continue

GROUP SUMMARY STATISTICS -- 2



T-TEST

Console

File Edit Workspace Data Analysis Plots Extras Packages & Data Window Help

Two Independent Sample Tests

R version 3. Copyright (C) Platform: x86_64-w64-mingw32

R is free software. You are welcome to redistribute it under certain conditions.

Type 'license()' or 'citation()' or 'demo()' or 'help.start()' or 'q()' to get more information.

[Previously used packages]

dat

Filter:

UID
Community
MainRadon
Location
Soil
LowerWindow
Separation
Heating
AC
HomeAge1990
RockType
Potential
radon_subLOD

Outcomes

MainRadon.tr

Factor

Foundation

Split

Subset

Plots

Mean

T-Test

N

Permutation

N

Central Tendency (AUC)

Wilcoxon

N

Brunner-Munzel

N

Distribution

Kolmogorov-Smirnov

N

Options

Run Reset Cancel

3. Check T-Test

4. The test result should show up in the Console

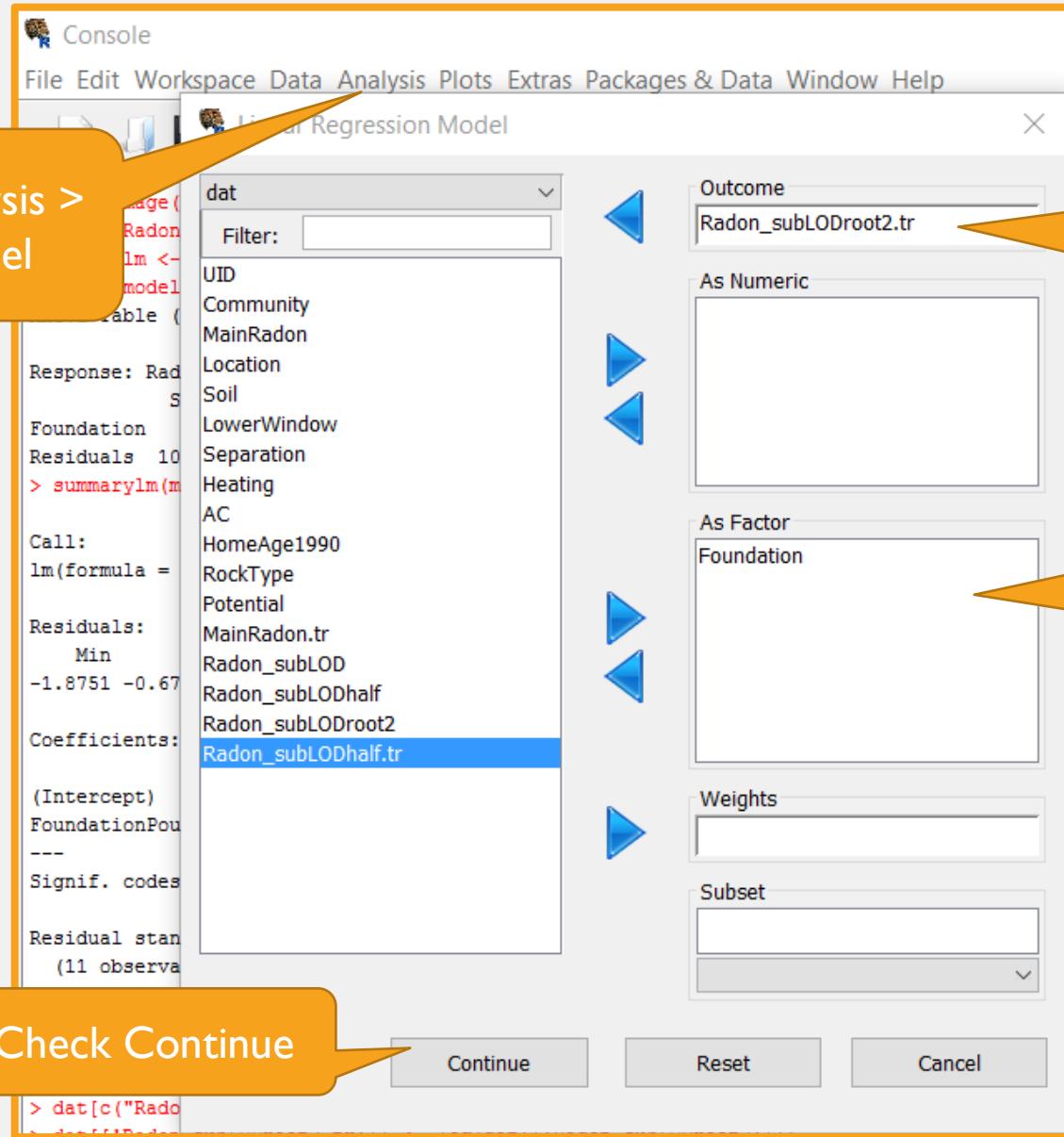
> load("G:/c")

1. Put the variable you want to test here

2. Put the dichotomise variable here

SIMPLE LINEAR REGRESSION CATEGORICAL PREDICTOR - I

1. Go to Analysis >
Linear Model

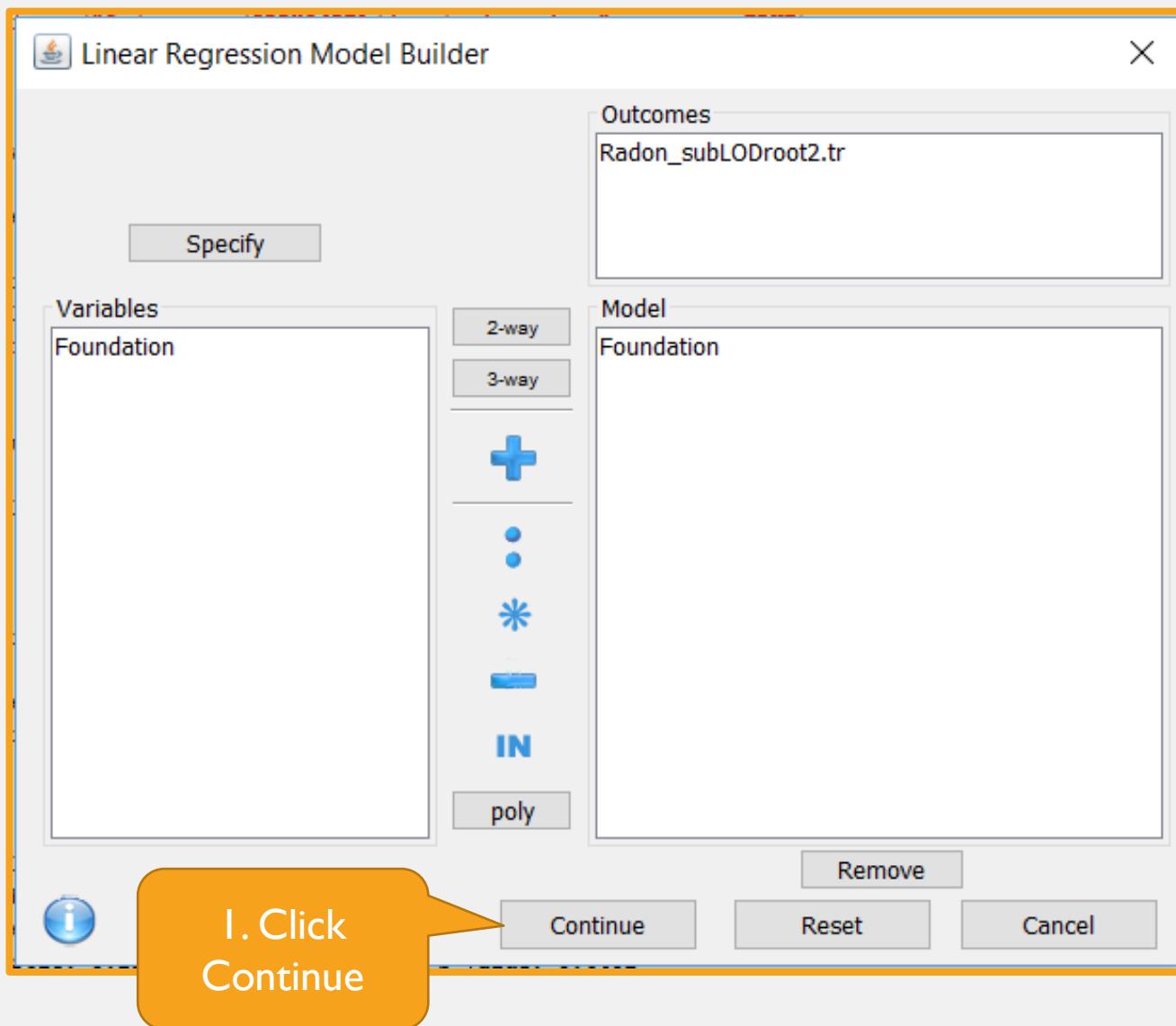


2. Put the
outcome
variable here

3. Put the
dichotomise
variable here

4. Check Continue

SIMPLE LINEAR REGRESSION CATEGORICAL PREDICTOR - 2



SIMPLE LINEAR REGRESSION CATEGORICAL PREDICTOR - 3

Linear Regression Model Explorer

Radon_subLODroot2.tr ~ Foundation

General Diagnostics Terms Added Variable

Preview

```
>.gui.working.env$model.lm <- lm(formula=Radon_subLODroot2.tr ~ undation, data=.gui.working.env$dat, na.action=na.omit)

>Anova(.gui.working.env$model.lm, type='II')

Anova Table (Type II tests)

Response: Radon_subLODroot2.tr
          Sum Sq Df F value Pr(>F)
Foundation   0.06   1  0.069 0.7928
Residuals 1000.41 1121

>summary.lm(.gui.working.env$model.lm)

Call:
lm(formula = Radon_subLODroot2.tr ~ Foundation, data = .gui.work
g.env$dat,
  na.action = na.omit)

Residuals:
    Min      1Q  Median      3Q     Max 
 -1000.00 -250.00 -100.00  150.00  1000.00 

  Run Reset Cancel
```

Options

Post Hoc

Tests

Plots

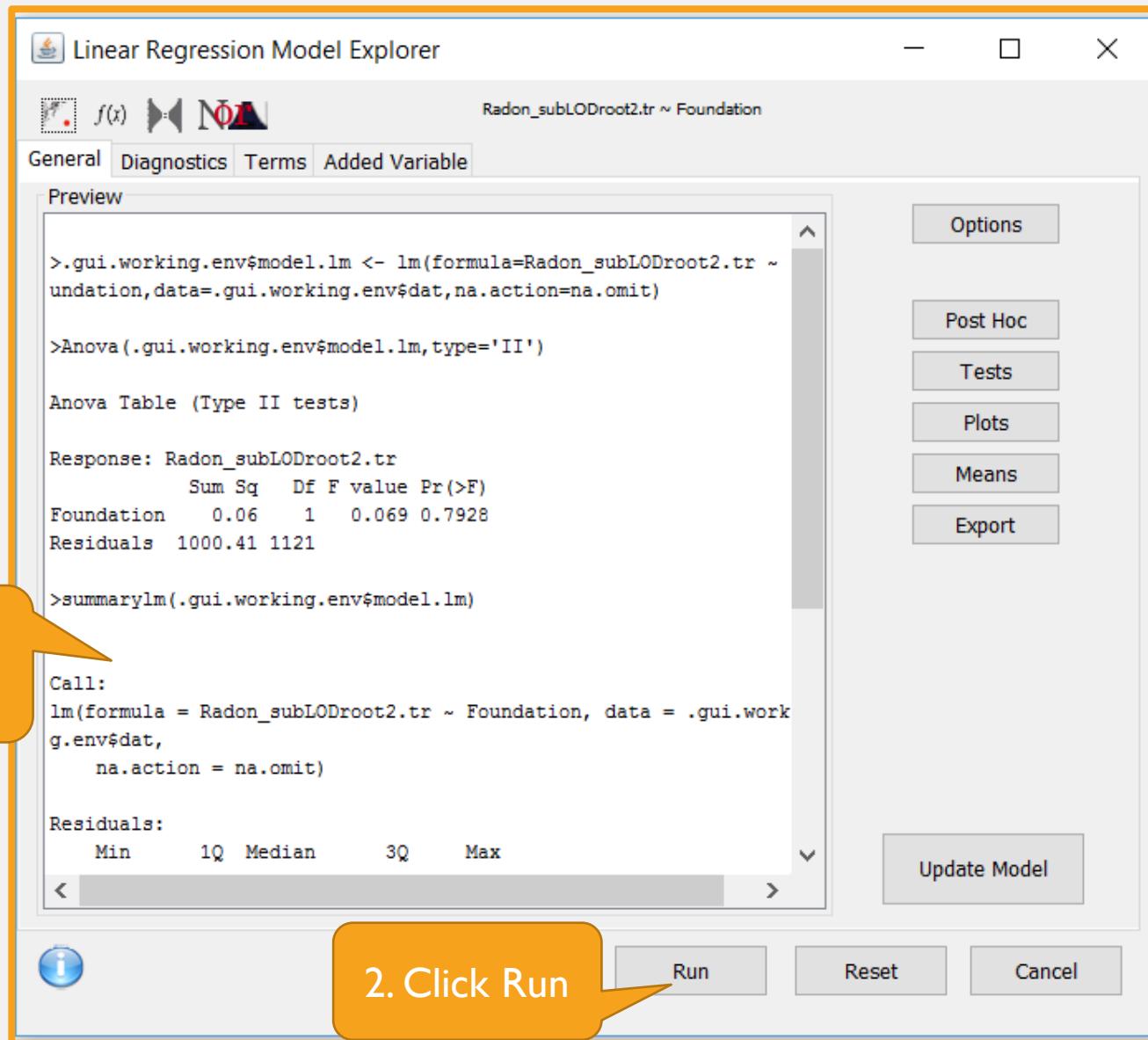
Means

Export

Update Model

I. You can preview the result here

2. Click Run



SIMPLE LINEAR REGRESSION CATEGORICAL PREDICTOR - 4

1. You should see this result in the Console

2. The model formula

```
> summarylm(model.lm)

Call:
lm(formula = Radon_subLODroot2.tr ~ Foundation, data = dat, na.action = na.omit)
```

Residuals:

Min	1Q	Median	3Q	Max
-1.5522	-0.7022	-0.0909	0.5934	3.5296

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	3.89177	0.07492	51.947	<2e-16 ***
FoundationPoured	0.02124	0.08086	0.263	0.793

Signif. codes: 0 '****' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.9447 on 1121 degrees of freedom
(11 observations deleted due to missingness)

Multiple R-squared: 6.155e-05, Adjusted R-squared: -0.0008305
F-statistic: 0.069 on 1 and 1121 DF, p-value: 0.7928

3. The model coefficients

4. The reference level is "Other"

5. R-squared and p-value