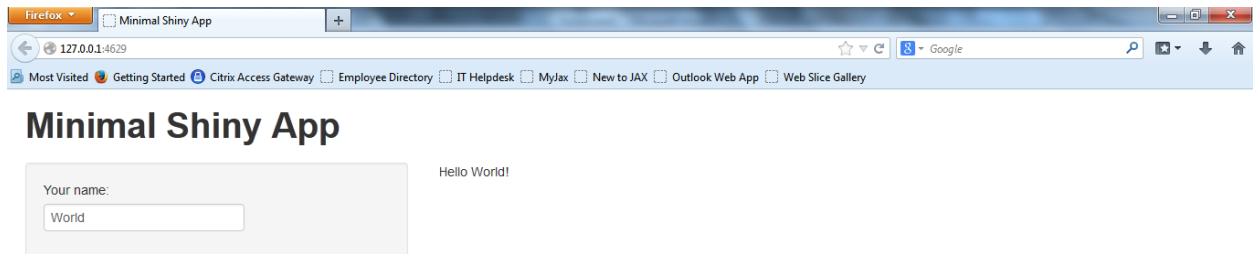


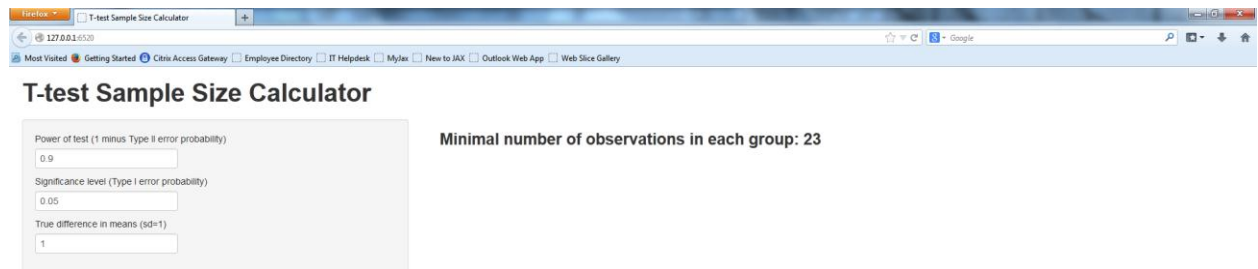
Exercise 0: Hello World!

Install `shiny` package. Download and extract `00_hello_world.zip` file from <http://jdem.cz/bapnb8>. Edit the path in `run.R` and run it.



Exercise 1: Minimal sample size calculator

Look at `power.t.test` function and make a minimal sample size calculator for two-sample, two-sided T-test.



HINT 1: Inputs are characters; you need to convert them to numeric with `as.numeric`.

HINT 2: `textInput` fields in `ui.R` must be separated by commas

HINT 3: Use `h3 (textOutput (...))` to make output more visible

Exercise 2: Better min. sample size calculator

Improve your sample size calculator:

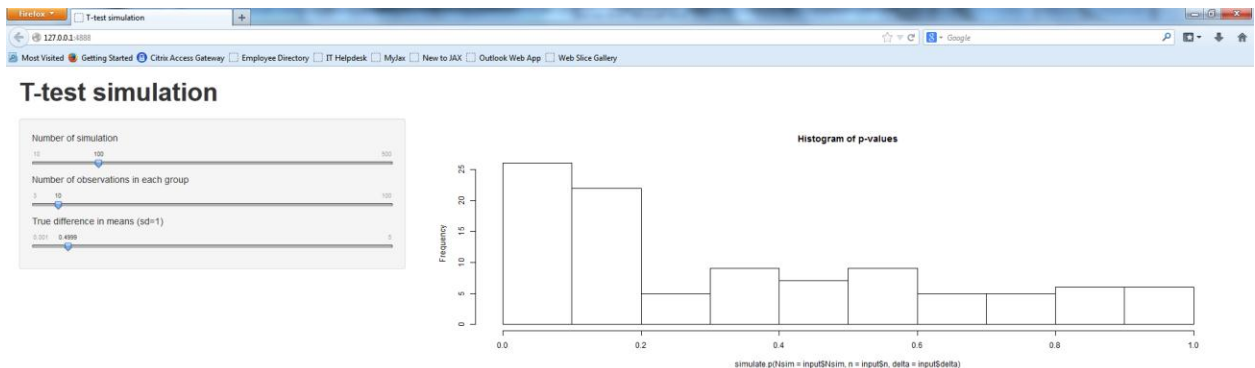
- Use `sliderInput` instead of `textInput`.
- Enable user to set other parameters of `power.t.test` function with `radioButtons`, `selectInput` and `checkboxInput`
- Print complete `power.t.test` output (not just `n`) with `verbatimTextOutput`

d) *Optional:* Remove dots from type / alternative options (“two sample” instead “two.sample”)

The screenshot shows a web browser window with the title 'Better T-test Sample Size Calculator'. The interface includes several sliders and a dropdown menu. The sliders are for 'Power of test (1 minus Type II error probability)' (set to 0.9), 'Significance level (Type I error probability)' (set to 0.05), and 'True difference in means (sd=1)' (set to 0.9998). The 'Type of t test' dropdown is set to 'two sample'. Below the dropdown, there are radio buttons for 'One- or two-sided test' with 'two sided' selected, and a checkbox for 'Use strict interpretation in two-sided case' which is unchecked. To the right, a text box displays the calculated values: 'n = 22.02949', 'delta = 0.9998', 'sd = 1', 'sig.level = 0.05', 'power = 0.9', and 'alternative = two.sided'. A note at the bottom states 'NOTE: n is number in "each" group'.

Exercise 3: Simulated p-value distribution

And now let us do simulations. User should specify Nsim (=number of simulations), n (= number of observations in each sample) and delta (= true difference in means). The output should be a histogram of p-values for two-sided two-sample T-test. (hint: use `imageOutput` instead of `textOutput`).



Extra 1: Add `downloadButton` and enable user to download simulated p-values

Extra 2: Add button “Generate New” that set random number generator (`set.seed`) to a new value

Extra 3: Generate histogram for p-values uploaded by user (use `fileInput`)