



Introduction to Programming

Tutorial Task 2.2: Using Functions (Hello User with Functions)

Overview

In this task we change our Reading and Writing (Hello User) program to use functions to prompt and read in values.

- Purpose:** Learn how to use functions.
- Task:** Use the instructions on the following pages to **modify** your own Hello User program from Pass Task 1.3. Submit to Canvas when complete.
- Time:** This task should be completed in your lab class.
- Resources:**
- Chapters 1 – 3 of 'Learn to Program'
 - [Chapt 1: Numbers](#)
 - [Chapt 2: Letters](#)
 - [Chapt 3: Variables and Assignment](#)
 - [Chapt 4: Mixing it up](#)
 - Learn Ruby the Hard Way:
 - [Learn Ruby the Hard Way: Functions can return something.](#)

Submission Details

You must submit the following files to Canvas:

- Modified Reading and Writing (Hello User) source code (hello_user_with_functions.rb)
- Screenshot of the Terminal showing the execution of your modified Hello User program.
- The completed Data Dictionary in the Task 2.1 Question/ Answer Sheet

Make sure that your task has the following in your submission:

- The program must use Ruby functions provided in input_functions.rb to read the required details from the user, and respond correctly.
- The code must run with a screenshot showing it working.

Instructions

Functions allow you to 'chunk' together related lines of code. Functions can receive data as arguments and allow you to return a value.

The functions we are going to use in this task are contained in the file **input_functions.rb** (see the resources for this task). We are going to modify our previous program to use these functions.

If you recall our Reading and Writing (Hello User) program did the following:

- ask the user to enter their name, age, and the current year,
- calculate the year the user was born, and
- output a greeting message.

1. Download the **input_functions.rb** Ruby code from the Canvas (see the Resources for this task). This contains some useful functions you can use to read values from the user.
2. Copy **input_functions.rb** into the folder next to your **hello_user.rb** file (from Pass Task 1.3).
3. Using Atom or VS Code (or similar) declare the **hello_user_with_functions** program based on the program start code (**hello_user_with_functions_incomplete.rb**) shown below (also in the Resources for the task).

```
require 'date'
require './input_functions'

# Do you need something here?

# Insert into the following your hello_user code
# from task 1.3P and modify it to use the functions
# in input_functions

def main()
  # Copy in your code from your completed
  # hello_user Task 1.3 P. Then modify it to
  # use the code in input_functions.
  # use read_string for all strings (this will
  # remove all whitespace)
end

main()
```

4. Extend the code in main so that it does the following:

Use the functions in `input_functions.rb` to do the following:

1. Read the user's name (a String, prompt with 'Please enter your name: ') and store it in the name variable.
2. Print out the user's name followed by an exclamation mark.
3. Read the user's family name and store it in the family_name variable.
4. Print out the user's family_name followed by an exclamation mark.
5. Read in the user's year of birth as an integer
6. Calculate the user's age and print it out.
7. Prompt for and read in the user's height in metres as a float
8. Convert the height to inches and print out the result. Use the constant INCHES at the top of the code to convert metres to inches
9. Call the `read_boolean()` function from `input_functions.rb` passing in the argument "Do you want to continue?"
10. If the `read_boolean()` function returns true then display "ok, lets continue", if the function returns false then output "ok, goodbye".

Items 9 and 10 should look as follows:

```
continue = read_boolean('Do you want to continue?')
if (continue)
  # ok message here
else
  # good bye message here
end
```

5. Use Ruby to compile and run your program. An example of it running is as follows:

```
What is your name?
Sam
Your name is Sam!
What is your family name?
McClan
Your family name is: McClan!
What year were you born?
2012
So you are 7 years old
Enter your height in metres (i.e as a float):
1.1
Your height in inches is:
43.30711
Finished
Do you want to continue?
no
ok, goodbye
```

Now that the Task is complete you can submit it for assessment, which will help prepare it for your portfolio.

1. Use [Skitch](#) (or your preferred screenshot program) to take a screenshot of the Terminal, as this is one of the things you will need to submit.
2. Save the document and backup your work to multiple locations!
 - Once you get things working you **do not** want to lose them.
 - Work on your computer's storage device most of the time... but backup your work when you finish each task.
 - Use **Dropbox** or a similar online storage provider, as well as other locations.
 - Canvas is not a Backup of your work, so make sure you keep a copy!
 - A USB key and portable hard drives are good secondary backups... but can be lost/damaged (do not rely upon them).
3. Login to Canvas, and locate Tutorial Task 2.2
4. Change the status of the task to **Ready To Mark**
5. Upload your completed Using Functions code and the screenshot and the Answer Sheet.
6. If you check back later Canvas will have prepared these as PDFs for your tutor to assess.

Note: This is one of the tasks you need to **submit to Canvas**. Tutors should give guidance and perhaps feedback in the tutorial class.
Check the assessment criteria for the important aspect your tutor MAY check when assessing your finished portfolio.

End of Task