COLBY COLLEGE
Department of Mathematics
and Computer Science

CS115
Spring 1998

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Homework 2: Variables and operators

Due: Wednesday 17 February
Reading: Chapter 2.

Create a new project

For almost every assignment from now on, the first step will be to create a new project. We went through the steps last week, but just for review:

1. Close all CodeWarrior projects and quit all applications.
2. Start the CW Interactive Development Environment (IDE).
3. Select New from the File menu and choose the "cs115 – no graphics" project stationery.
4. Open the source code file named `NoGraphics.java`.
5. In the source code, change the name of the class to something else (for this project, make it `Date`).
6. Select "Save As" from the File menu and rename the source code file `Date.java`. The name of the class and the name of the file always have to be the same! Also, make sure CodeWarrior saves the file in your project directory!
7. Back in your project window, you should see that the name of the source code file has changed. If not, you probably did not save the renamed file in the project directory.
8. Change the name of the "main class" by pressing the weird icon at the far left of the row of icons in the project window and then selecting "Java target." If this step is not clear, see last week's directions. Hit "Save" before closing this window.
9. Change the output of the program and run it to make sure everything is working. Check to make sure your change takes effect.

You might want to save these instructions, since you will go through this process at the beginning of every assignment.

Printing dates

1. Following the example in Section 2.4, Write a program that creates three variables, named `day`, `date`, `month` and `year`. `day` will contain the day of the week and `date` will contain the day of the month. What type is each variable? Assign values to those variables that represent today's date.
2. Print the value of each variable on a line by itself. This is not a useful step by itself, but it is useful for checking that everything is working so far, and to give you a simple, working program as a starting place.
3. Modify the program so that it prints the date in standard American form: `Wednesday, February 17, 1999`.
4. Modify the program again so that the total output is:

```
American format:
Wednesday, February 17, 1999
European format:
Wednesday 17 February, 1999
```

5. Test your program to make sure it does not contain a "Year-2000 bug." Change the assignment statements to the appropriate values for Saturday, 1 January 2000 and make sure the program still works.
6. Add comments to the program with your name and the fact that this is Homework 2. Also, add explanatory comments anywhere you think they make your program easier for someone else to understand.
7. Print the program and write your name in the upper-right corner of the page.

Computing times

1. Close the previous project and go through the process of creating a new project, this time named `Time`.
2. Following the example in Section 2.6, create variables named `hour`, `minute` and `second`, and assign them values that are roughly the current time. Use a 24-hour clock, so that at 2pm the value of `hour` is 14.
3. What do you think you should do here before going on? See Step 2 above.
4. Make the program calculate and print the number of seconds since midnight.
5. Make the program calculate and print the number of seconds remaining in the day.
6. Make the program calculate and print the percentage of the day that has passed.
7. Again, test your program by typing in a different time.
8. Again, add comments to the program, print it, and write your name in the upper-right corner. Staple the two programs together and turn them in!

HINT: you may want to use additional variables to hold values temporarily during the computation. Variables like this, that are used in a computation but never printed, are sometimes called intermediate or temporary variables.