

User input, conditionals

These are not in order of difficulty or interestingness – please jump around and make sure you don't get stuck!

1. Look back at your star line program. Prompt the user for the number of stars to draw and the position to start the line.
2. Again, with the star line program, prompt the user for the size of the biggest star.
3. Again, with the star line program, prompt the user for a color to make a gradient from (for example, you could accept “red,” “green” or “blue” and decide which gradient to make based on that. Alternately, you could ask for starting percentages of each color. For an extra challenge, give the user a choice of how to enter his or her color preference)
4. Write a function called `is_leap_year` that prompts the user for a year and prints out whether it is a leap year. You will find this algorithm useful:

A year is a leap year if it is divisible by 4 but not by 100 OR it is divisible by 400

5. Write a function called `days_in` that prompts the user for the number of a month (1 for January, 2 for February, etc) and prints out the number of days in that month. You may find this rhyme useful:

30 days hath September,
April, June and November,
All the rest have 31,
Excepting February alone
(And that has 28 days clear,
With 29 in each leap year).

6. Write a function called `pay_day` that prompts an employee first for his or her wage (how much he or she makes in an hour) and hours worked for each of five days. Any overtime work (over 40 hours a week) is paid at 150% regular wage. Here is a sample interaction:

```
How much do you make in an hour? 15
```

```
Hours worked day 1? 5
```

```
Hours worked day 2? 10
```

```
Hours worked day 3? 8
```

```
Hours worked day 4? 5
```

Hours worked day 5? 8

You will make \$540

7. **EXTRA CHALLENGE!!** Look back at the sunburst you created in the first assignment. Can you think of a way of making the branches change color in a repeating pattern (for example, red-green-blue-red-green-blue) without repeating any drawing code? You will need to investigate the modulus (%) operator. See if you can guess what it does by trying it out on a couple of values. What is $20 \% 1$? $34 \% 10$? Then look it up.