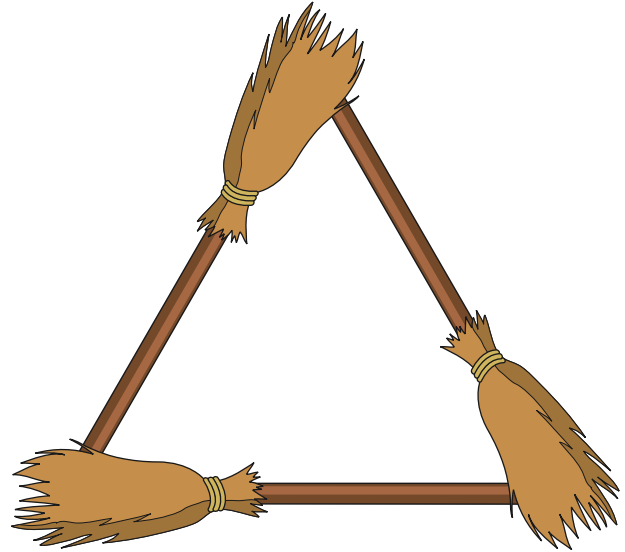




Overview

A short distance from **Hogwarts School of Witchcraft and Wizardry** sits a small town called Hogsmeade. This town is a common destination of students, faculty and tourists from all over the World. Hogsmeade contains a number of interesting shops including:

- *Honeydukes*, which offers a wide variety of magical candy including Every Flavor Beans, Fizzing Whizzbees, and Drooble's Best Blowing Gum.
- *Hog's Head Inn*, a dingy bar frequented by ne'er-do-wells.
- *Zonko's Joke Shop*, which sells "cheeky" magical items such as Dungbombs, Frog Spawn Soap, and Nose-Biting Teacups.
- *Madam Puddifoot's Tea Shop*, a popular destination for romantic evenings.



But, by far, the most popular destination for food and conversation is **The Three Broomsticks**. As a popular meeting place, patrons tend to create a rather sizeable bill. So, just like muggles, Witches and Wizards have to split the bill.

You are going to use the odd muggle technology called "computers" to split the bill (after giving a nice tip).

Sample Run

The user's input is printed in **blue**. The data outputted from your calculations is printed in **red**.

How much, in knuts, was the bill?

1500

How much, in percent, is the tip?

12

The total is 1680 knuts.

How many people are splitting the bill?

6

Okay, witches and wizards, give 280 knuts each.

Tip of 180 was calculated by multiplying 1500 by 12 and then dividing by 100.

A simple divide. ...or is it?

Input Validation

There is a problem that can occur in your program. What happens in the user enters zero for the number of people splitting the bill? Yes, you divide by zero!

While this might not be an issue in the Magical World, it causes a great deal of problems for muggles! So, you need to create an **input validation loop**. Your program will not proceed until the user enters a positive integer.

How much, in knuts, was the bill?

1500

How much, in percent, is the tip?

12

The total is 1680 knuts

How many people are splitting the bill?

0

How many people are splitting the bill?

-1

How many people are splitting the bill?

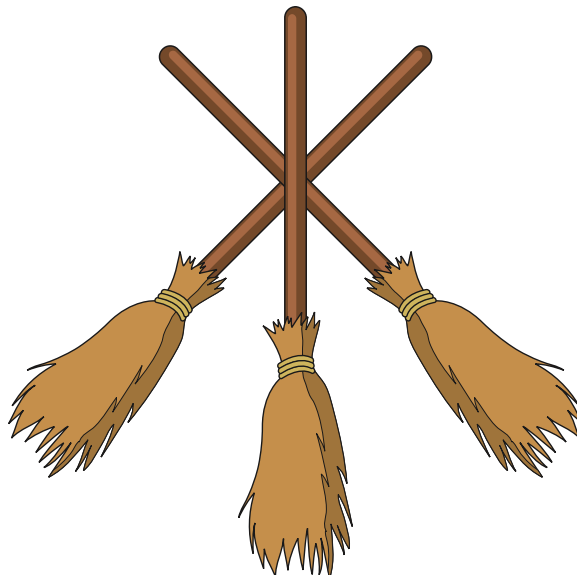
6

Okay, witches and wizards, give 280 knuts each.

There is a Do Loop here that prevents the user from continuing.

Hints

- Don't worry about the loop until last.
- Work on each of the requirements below one at a time. You will turn in the final program, but incremental design is best for labs.
- Remember: You cannot divide by an immediate. You need to put 100 into a register first.



Requirements

You must think of a solution on your own. **You can come up with your own theme.** You don't have to use mine. The requirements are as follows:

1. Prompt and input the bill (in knuts or the lowest denomination of the currency you are using).
2. Prompt and input the tip
3. Compute the tip and add it to the bill to get the total.
4. Display the total to the screen with some nice text.
5. Prompt Input the number of guests.
6. Write an input validation loop to prevent the user from enter < 1 guests.
7. Output the split, for each guest, to the screen with some nice text.

Submitting Your Lab



**This activity may only be submitted in Intel Format.
Using AT&T format will result in a zero. Any work from a prior semester will receive a zero.**

Afterwards, run Alpine by typing the following and, then, enter your username and password.

```
alpine
```

Please send an e-mail to yourself (on your Outlook, Google account) to check if Alpine is working. To submit your lab, send the assembly file (not `a.out` or the object file) to:

```
dcook@csus.edu
```



UNIX Commands

Editing

Action	Command	Notes
Edit File	nano <i>filename</i>	"Nano" is an easy to use text editor.
E-Mail	alpine	"Alpine" is text-based e-mail application. You will e-mail your assignments it.
Assemble File	as -o <i>object source</i>	Don't mix up the <i>object</i> and <i>source</i> fields. It will destroy your program!
Link File	ld -o <i>exe object(s)</i>	Link and create an executable file from one (or more) object files

Folder Navigation

Action	Command	Description
Change current folder	cd <i>foldername</i>	"Changes Directory"
Go to parent folder	cd ..	Think of it as the "back button".
Show current folder	pwd	Gives the current a file path
List files	ls	Lists the files in current directory.

File Organization

Action	Command	Description
Create folder	mkdir <i>foldername</i>	Folders are called directories in UNIX.
Copy file	cp <i>oldfile newfile</i>	Make a copy of an existing file
Move file	mv <i>filename foldername</i>	Moves a file to a destination folder
Rename file	mv <i>oldname newname</i>	Note: same command as "move".
Delete file	rm <i>filename</i>	Remove (delete) a file. There is no undo.