

Assignment 2 – Vending Machine and Choose Your Own Adventure Game

Goals

- Write a program that calculates the amount of change to be returned from a vending machine using Harry Potter currency.
- Write a game that simulates a text based choose your own adventure game.
- Work with numeric calculations
- Work with basic conditional statements (**if/elif/else**)

Part 1: Harry Potter Vending Machine

In the wizarding world of Harry Potter, the currency system is not based off dollars and cents, but instead 3 different coins: knuts, sickles, and galleons. You will be writing a program that simulates the amount of change that is dispensed from a vending machine using this currency system based on the following requirements:

- The conversion values for these coins in knuts are as follows:
 - **1 knut = 1 knut**
 - **1 sickle = 29 knuts**
 - **1 galleon = 493 knuts**
- This vending machine dispenses 4 different items. The items in the vending machine and their costs are as follows:
 - a) **Butterbeer: 58 knuts**
 - b) **Quill: 10 knuts**
 - c) **The Daily Prophet: 7 knuts**
 - d) **Book of Spells: 400 knuts**
- You must display these options to the user and allow them to select one of these 4 choices.
- After selecting an item, ask the user if they are willing to share their purchase on Instagram. If so, they will receive a 5 knut discount, and then use that number to determine the discounted price of the selected item.
- Since items in the vending machine cost less than 493 knuts, only 1 galleon (worth 493 knuts) will be accepted to pay for the item. You must determine the change that will be dispensed in sickles and knuts.
 - Use division and modulus operators to figure out the change.

- You must dispense change in the largest possible units. Include the amount of change being calculated in your output. For example, if an item costs 423 knuts, you have to find change for 70 knuts. You may not simply return 70 knuts; it should be 2 sickles, and 12 knuts.
- Do not hard code in the values for the change for each item. You must use arithmetic operations to determine the correct change.
- **Important:** You code must handle the follow user input errors:
 - CapitAlizaTioN: The program must allow the user to enter either upper or lower case strings (e.g. either **Y** or **y**)
 - Invalid menu choice: If the user enters a choice other the options provided (e.g. **a, b, c,** or **d**), your program should tell them they have entered incorrectly. Since we have not covered how to repeat code yet, it is acceptable to tell the user they have been assigned a default choice (i.e. just pick an option for them)
- Be sure to comment your code.

Optional (Extra Credit, maximum 3 points)

- Revise the vending machine so that it can accept more than one galleon
 - The user would be able to enter any amount of each of the coins, and the proper change should still be returned.
 - You may adjust the prices of the items in the vending machine, or add more items.

Sample Output 1 for Part 1

Please select an item from the vending machine:

- a) Butterbeer: 58 knuts
- b) Quill: 10 knuts
- c) The Daily Prophet: 7 knuts
- d) Book of Spells: 400 knuts

> **b**

Will you share this on Instagram? (y/n): **y**

Thanks! You get 5 knuts off your purchase

You bought a Quill for 10 knuts (with coupon of 5 knuts) and paid with one galleon.

Here is your change (488 knuts):

Sickles: 16

Knuts: 24

Sample Output 2 for Part 1

Please select an item from the vending machine:

- a) Butterbeer: 58 knuts
- b) Quill: 10 knuts
- c) The Daily Prophet: 7 knuts
- d) Book of Spells: 400 knuts

> d

Will you share this on Instagram? (y/n): N

You bought a Book of Spells for 400 knuts (with coupon of 0 knuts) and paid with one galleon.

Here is your change (93 knuts):

Sickles: 3

Knuts: 6

Sample Output 3 for Part 1

Please select an item from the vending machine:

- a) Butterbeer: 58 knuts
- b) Quill: 10 knuts
- c) The Daily Prophet: 7 knuts
- d) Book of Spells: 400 knuts

> x

You have entered an invalid option. You will be given a Butterbeer for 58 knuts.

Will you share this on Instagram? (y/n): Maybe

You have entered an invalid option. No coupon will be used

You bought a Butterbeer for 58 knuts (with coupon of 0 knuts) and paid with one galleon.

Here is your change (435 knuts):

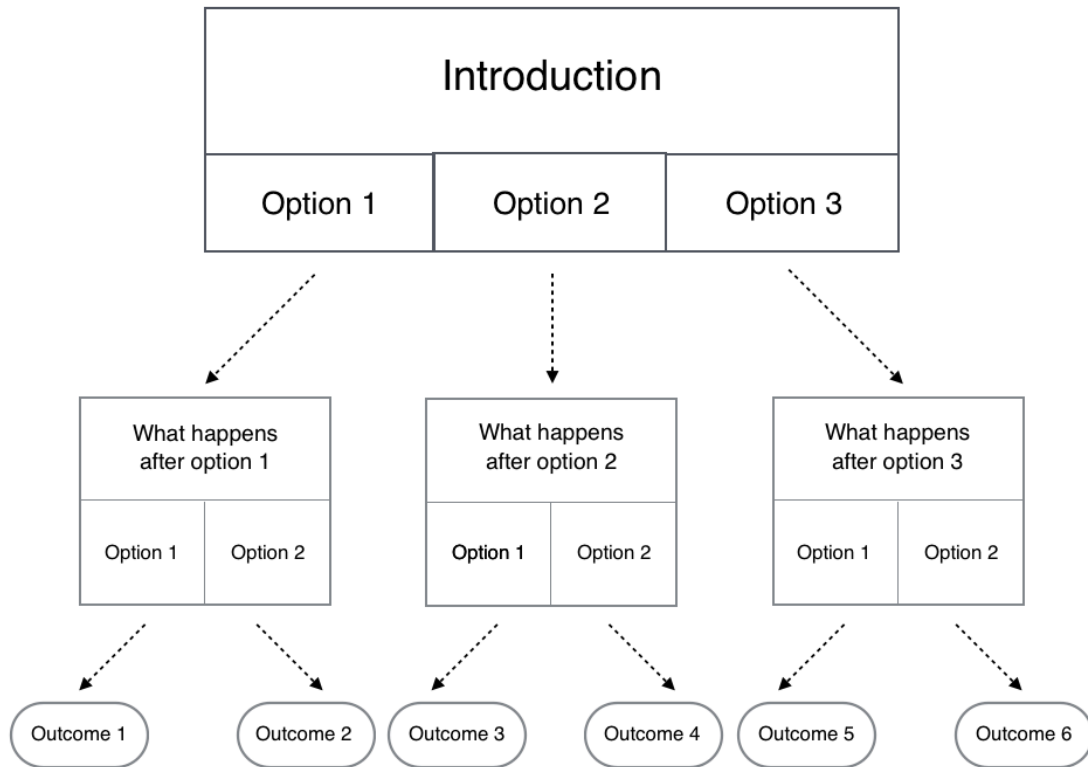
Sickles: 15

Knuts: 0

Part 2: Choose Your Own Adventure

In a choose your own adventure game, a story unfolds based on the decisions a user makes. You will write a program for a choose your own adventure game using the following requirements:

- Use **if/elif/else** and **if/else** statements and user input to produce a story for a “Choose Your Own Adventure” game ([Wikipedia](#))
- Based on the first choice the user makes, the next part of the story and then next question the user is asked should change.
- Follow the diagram below when planning out your story, and be creative when coming up with your story and questions to ask the user.
 - You are not required to follow the exact structure of the diagram, however, you must have at least two levels of questions, meaning the user should be asked a minimum of 2 questions when playing the game.
 - At least one level of questions must have at least three choices.
 - You may branch your story by adding more options for the user if you want.
- **Important:** You code must handle the follow user input errors:
 - CapitAlIzaTioN: The program must allow the user to enter either upper or lower case strings (e.g. either **Y** or **y**)
 - Invalid menu choice: If the user enters a choice other the options provided (e.g. **a, b, c,** or **d**), your program should tell them they have entered incorrectly. Since we have not covered how to repeat code yet, it is acceptable to tell the user they have been assigned a default choice (i.e. just pick an option for them)
- Be sure to comment your code.



Story is adapted from: <https://www.teachervision.com/creative-writing/activity/3139.html>

Sample Output 1 for Part 2

Welcome to a choose your own adventure game.

It is summertime again, vacation time. You go to your uncle's house. He takes you on a tour around the city. There are many old buildings, but the oldest of all is on Main Street. The address is 880. He says that it is haunted, but you don't believe him.

Do you:

- a) Go inside the house
- b) Stay there
- c) Continue walking

> a

You say, "I will go inside." He says, "I want to watch you." You start up the stone steps of the old haunted house. You open the door and step inside and suddenly a sharp arrow streaks across in front of you! But it misses you.

Do you:

- a) Go up the staircase

b) Go through the swinging doors

> B

You go through the swinging doors. Behind the swinging doors you come across a treasure chest. Congrats! It appears to be full of gold.

THE END

Sample Output 2 for Part 2

Welcome to a choose your own adventure game.

It is summertime again, vacation time. You go to your uncle's house. He takes you on a tour around the city. There are many old buildings, but the oldest of all is on Main Street. The address is 880. He says that it is haunted, but you don't believe him.

Do you:

a) Go inside the house

b) Stay there

c) Continue walking

> c

You continue walking down the sidewalk when you see a split in the road.

Do you:

a) Go left.

b) Go right.

> b

You find a dollar on the sidewalk. It's your lucky day!

THE END

Deliverables and Submission Instructions

- Your file must begin with a comment using the following format (use the correct information relevant to this assignment):

```
# Hermione Granger
```

```
# ITP 115
```

```
# Assignment 1
```

```
# 1/17/2075
```

```
# Description:
```

```
# This program simulates a quidditch match
```

- You may include part 1 and 2 in the same file as long as it is very clear through comments which part is which. You may also separate parts 1 and 2 into two files, as long as the names of the files are clear.
- Create a folder on your computer called
ITP115_a#_lastname_firstname
(replace # with this lab number)
- Inside the folder, include your python source code
- Compress the folder (make a zip file) called
ITP115_a#_lastname_firstname.zip
(replace # with this assignment number)
- Upload zip file to Blackboard site for our course

Grading

Item	Points
Part 1: Vending Machine	20
Part 2: Choose Your Own Adventure	10
Total*	30

** Points will be deducted for poor code style, or improper submission.*