Additional Projects

Hangman

codeclub world.org

Introduction

Let's build a game: Hangman! The computer will pick a word, and the player can guess it letter-by-letter, but if they make too many wrong guesses, they'll lose.

Activity Checklist — Follow these INSTRUCTIONS one by one

Test your Project — Click on the green flag to TEST your code

Save your Project — Make sure to SAVE your work now

Step 1: Pick a word

We start by picking a random word, so let's begin

Activity Checklist

1. Open IDLE, and open a new window. ☐
2. Write in the following code: ☐

```
from random import choice

word = choice(["code", "club"])

print(word)
```

3. Save your program, and run it. What word does it print? ☐
4. Run it again, does it print a different word? ☐

Each time you run this program, it picks a random word from the list `["code", "club"]`, using the `choice` function.

Step 2: Guess a letter

Now we've picked a word, let's find out how to guess a letter.

Activity Checklist

1. With the same file, edit the code so it looks like this ☐

```
from random import choice

word = choice(["code", "club"])

out = ""
```

```
for letter in word:
    out = out + "_"

print("Guess a letter in the word:", out)
```

2. Save and run the program.
3. You should see "Guess a letter in the word: ____", in the output window (the other window, not the one you've written your program in.) We use a for loop to build up some text with an underscore `_` for each letter in the word. The word "code" put in, will write out `____` to the screen.
4. Let's guess a letter! Change the code to look like this:

```
from random import choice

word = choice(["code", "club"])

out = ""

for letter in word:
    out = out + "_"

print("Guess a letter in the word, then press enter:", out)

guess = input()

if guess in word:
    print("Yay")
else:
    print("Nope")
```

We use a new function `input()` to find out what the player typed. We use `if` to find out if the letter was in the word. We've got the essentials down, so let's continue onward.

(Python 2 Note: Use `raw_input` if you're on an old version of python)

Step 3: Track the guesses

Now we're going to use two features of python, lists and the `while` loop.

Activity Checklist

1. In the same file, edit the code to look like this:

```
from random import choice

word = choice(["code", "club"])

guessed = []

while True:

    out = ""
    for letter in word:
        if letter in guessed:
            out = out + letter
        else:
            out = out + "_"

    if out == word:
        print("You guessed", word)
        break


    print("Guess the word:", out)
    guess = input()

    if guess in guessed:
        print("Already guessed", guess)
    elif guess in word:
        print("Yay")
        guessed.append(guess)
    else:
```

```
        print("Nope")

    print()
```

2. Run the code, try guessing the letters. What we've done is put a loop, like `forever` in scratch, that will keep asking for letters from the player, until they guess the word. We also use a list, `guessed`, which we add the letters to when they're right. This program will loop forever until all the letters are guessed.

Step 4: Track the mistakes

Hangman should only give you a few chances to guess, rather than trying every letter in turn

Activity Checklist

1. Edit the existing file, and change it to look like the following:

```
```{.language-python}
from random import choice
word = choice(["code", "club"])
guessed = []
wrong = []
while True:
```

```
out = ""
for letter in word:
    if letter in guessed:
        out = out + letter
    else:
        out = out + "_"

if out == word:
    print("You guessed", word)
    break
```
```

```
print("Guess the word:", out)

guess = input()

if guess in guessed or guess in wrong:
    print("Already guessed", guess)
elif guess in word:
    print("Yay")
    guessed.append(guess)
else:
    print("Nope")
    wrong.append(guess)

print()
```

```

We're using a new list, `wrong`, to store all the guesses that weren't right

Only one last thing before the game is complete, which is to only have a few chances to guess.

## Step 5: Only a few chances

### Activity Checklist

1. Edit the file, to introduce a new variable, `tries`: ☐

```
from random import choice

word = choice(["code", "club"])

guessed = []
wrong = []
```
```

```
tries = 7

while tries > 0:

    out = ""
    for letter in word:
        if letter in guessed:
            out = out + letter
        else:
            out = out + "_"

    if out == word:
        break

    print("Guess the word:", out)
    print(tries, "chances left")

    guess = input()

    if guess in guessed or guess in wrong:
        print("Already guessed", guess)
    elif guess in word:
        print("Yay")
        guessed.append(guess)
    else:
        print("Nope")
        tries = tries - 1
        wrong.append(guess)

    print()

if tries:
    print("You guessed", word)
else:
    print("You didn't get", word)
```

2. Run the file, and see what happens when you guess wrong letters

Step 6: Add some new words in

Activity Checklist

1. Find the line in the source code: ☐

```
word = choice(["code", "club"])
```

2. Edit it to add more words, why not try ☐

```
word = choice(["code", "club", "robot", "party"])
```

Remember to put the words in quotes, and put a comma between them to make a list of words.