

Python Minigames & Quizzes

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<p>1) Enter two numbers, and then perform three different mathematical operations using those numbers.</p>
<p>2) Enter some text (a sentence, letters, numbers, whatever you want to type), and then print out two things:</p>
<p>a. The number of characters that were entered.</p>
<p>b. Whether this was a short string or a long string (we'll define "short" as 10 characters or less).</p>
<p>3) Enter four numbers (each one will require its own prompt) and store the values in a list. Then some information about the values in the list will pop up at the end:</p>
<p>a. If there are any negative numbers in the list.</p>
<p>b. The sum of the values in the list.</p>
<p>c. List of numbers (as a list, not as individual values).</p>
<p>4) Here is an algorithm that will prompt the user for three strings. If any of those strings contain the sequence of letters "rick", or a capital H, then you should print out "I like these strings". If the strings happen to contain a "rick" and a capital H, you should print out "These are the best strings ever!". If there are no capital Hs or "rick"s, you should print out "These strings bore me."</p>
<p>5) Here is an algorithm that will repeatedly prompt the user to enter a word and then add that word to a list. This process should continue until the user enters the word "done" (without the quotes), and then the algorithm should print out the contents of the list.</p>
<p>6) Here is an algorithm where the user enters numbers and then adds each number to a list. This process should continue until the user enters a negative number. Then the algorithm should print out:</p>
<p>a. The smallest value in the list.</p>
<p>b. The largest value in the list.</p>
<p>c. The sum of all the values in the list.</p>
<p>7) The Python code below was written to repeatedly take numeric values from the user, print a message to say if the value is even or odd, and then look for the factors of that number (values that can evenly divide the input number).</p>
<p>8) I created a game written in Python where a player finds out how many states they can list. The idea is that the player would be prompted to type in as many states as they can think of. After that, they are given a score and a letter grade based on how many states they got correct.</p>

Simple Calculator

1) Enter two numbers, and then perform three different mathematical operations using those numbers.

Python Code:

```
# Referencing variables' values
Num1 = input("What is your first number? ")
Num2 = input("What is your second number? ")
Math = input("What do you want to do with these numbers? ")
Plus = str("+")
Minus = str("-")
Times = str("*")
Div = str("/")
Expo = str("**")
Root = str("/**")

# Referencing the variables' sum, difference, product, quotation, exponentiation, and root values
SumNum = int(Num1) + int(Num2)
DiffNum = int(Num1) - int(Num2)
ProdNum = int(Num1) * int(Num2)
QuotNum = int(Num1) / int(Num2)
ExpoNum = int(Num1) ** int(Num2)
RootNum = int(Num1) ** (int(Num2) ** -1)

# Referencing and solving each equation
if Math == '+':
    SumEqual = ("The sum of {0} and {1} is {2}").format(int(Num1), int(Num2), SumNum)
    print(SumEqual)
if Math == '-':
    DiffEqual = ("The difference of {0} and {1} is {2}").format(int(Num1), int(Num2), DiffNum)
    print(DiffEqual)
if Math == '*':
    ProdEqual = ("The product of {0} and {1} is {2}").format(int(Num1), int(Num2), ProdNum)
    print(ProdEqual)
if Math == '/':
    QuotEqual = ("The quotation of {0} and {1} is {2}").format(int(Num1), int(Num2), QuotNum)
    print(QuotEqual)
if Math == '**':
    ExpoEqual = ("The exponentiation of {0} to the power of {1} is {2}").format(int(Num1), int(Num2),
ExpoNum)
    print(ExpoEqual)
if Math == '/**':
    RootEqual = ("The root of {0} to the power of {1} is {2}").format(int(Num1), int(Num2), RootNum)
    print(RootEqual)
```

Text Counter

2) Enter some text (a sentence, letters, numbers, whatever you want to type), and then print out two things:

- The number of characters that were entered
- Whether this was a short string or a long string (we'll define "short" as 10 characters or less).

Python Code:

```
# Ask the user for a string of characters
Str = input("Enter your string: ")

# Let the user know the number (length) of characters in the string
CharStr = ("Your string has {0} characters.".format(len(Str)))
print(CharStr)

# Figure out if it's a LONG string or a SHORT string and let the user know
# If it's a LONG string
if (len(Str) > 10):
    print("This is a long string.")

# If it's a SHORT string
else:
    print("This is a short string.")
```

Negative & Sum Finder

3) Enter four numbers (each one will require its own prompt) and store the values in a list. Then some information about the values in the list will pop up at the end:

- If there are any negative numbers in the list
- The sum of the values in the list
- List of numbers (as a list, not as individual values)

Python Code:

```
# Ask the user for the four numbers and append the numbers into a list
NumList = []
Num1 = input("Enter the first value: ")
NumList.append(Num1)
Num2 = input("Enter the second value: ")
NumList.append(Num2)
Num3 = input("Enter the third value: ")
NumList.append(Num3)
```

```
Num4 = input("Enter the fourth value: ")
NumList.append(Num4)

# Determine if there are any negative numbers
if (int(Num1) < 0) or (int(Num2) < 0) or (int(Num3) < 0) or (int(Num4) < 0):
    print("There are negative numbers in this list.")
else:
    print("There are not any negative numbers in this list.")

# Calculate the sum of the numbers in the list
SumNum = int(Num1) + int(Num2) + int(Num3) + int(Num4)

# Let the user know the sum of the numbers in the list
SumEqual = ("The sum of the values is {0}.".format(SumNum))
print(SumEqual)

# Display numbers in the list
ListStr = ("The list is: {0}.".format(NumList))
print(ListStr)
```

String Finder

4) Here is an algorithm that will prompt the user for three strings. If any of those strings contain the sequence of letters “rick”, or a capital H, then you should print out “I like these strings”. If the strings happen to contain a “rick” and a capital H, you should print out “These are the best strings ever!”. If there are no capital Hs or “rick”s, you should print out “These strings bore me.”

Python Code:

```
# Assign variables for strings "rick" and "H"
StrRick = 'rick'
StrH = 'H'

# Ask the user for three strings and append them in a list
StrList = []
Str1 = input("Enter the first string: ")
StrList.append(Str1)
Str2 = input("Enter the second string: ")
StrList.append(Str2)
Str3 = input("Enter the third string: ")
StrList.append(Str3)

# Check to see if any of the strings contain "rick" or "H"
if ('rick' in StrList) and ('H' not in StrList):
    print("I like these strings.")
```

```
if ('H' in StrList) and ('rick' not in StrList):
    print("I like these strings.")
elif ('rick' and 'H' in StrList):
    print("These are the best strings ever!")
elif ('rick' not in StrList) and ('H' not in StrList):
    print("These strings bore me.")
```

Word List Maker

5) Here is an algorithm that will repeatedly prompt the user to enter a word and then add that word to a list. This process should continue until the user enters the word “done” (without the quotes), and then the algorithm should print out the contents of the list.

Python Code:

```
# Make a word list for the user to append words into
WordList = []

# Prompt the user to keep entering words until the user enters 'done'
WordStr = input("Enter a word (enter 'done' to quit): ")

# As long as the user doesn't type 'done', continue appending the user inputs to the word list
while WordStr != 'done':
    WordList.append(WordStr)
    WordStr = input("Enter another word (enter 'done' to quit): ")

# Print the word list
print("The list was: {}".format(WordList))
```

Positive List Identifier

6) Here is an algorithm where the user enters numbers and then adds each number to a list. This process should continue until the user enters a negative number. Then the algorithm should print out:

- The smallest value in the list
- The largest value in the list
- The sum of all the values in the list

Python Code:

```
# Prompt the user to enter a number
NumStr = input("Enter a number (enter a negative value to quit): ")
Num = int(NumStr)
```

```

# Make a number list
NumList = []

# As long as the user enters positive numbers, do the following:
while Num >= 0 :
    Num = int(NumStr)

    # If user enters a positive number, put number in number list, and prompt user to enter new number
    if Num >= 0 :
        NumList.append(Num)
        NumMin = min(NumList)
        NumMax = max(NumList)
        NumSum = sum(NumList)
        NumStr = input("Enter a number (enter a negative value to quit): ")

# Print the following if the user enters a negative number:
else :
    # The smallest number in the list
    print("The smallest value was:", NumMin)
    # The largest number in the list
    print("The largest value was:", NumMax)
    # The sum of the numbers in the list
    print("The sum of the values was:", NumSum)

```

Even/Odd Factor Finder

7) The Python code below was written to repeatedly take numeric values from the user, print a message to say if the value is even or odd, and then look for the factors of that number (values that can evenly divide the input number).

Python Code:

```

# Prompt the user to enter either a positive integer or -1 to quit
InputStr = input("Enter a positive integer value (-1 to quit): ")
InputNum = int(InputStr)

# While the input number DOES NOT equal -1, do the following:
while InputNum != -1 :
    # Check to see if this number is even or odd
    InputNum = int(InputStr)
    if (InputNum % 2) == 0 :
        print(InputNum, "is an even number.")
    else :
        print(InputNum, "is an odd number.")

```

```

# Check to see if the number is prime or not
IsPrime = True
for i in range(1, InputNum + 1) :
    DivValue = i
    InputNum = int(InputStr)
    # see if the input number is evenly divisible by the DivValue
    if (InputNum % i) == 0 :
        InputNum = int(InputStr)
        print(InputNum, "is divisible by", i)
        IsPrime = False
# If the number is prime, then print the number
if IsPrime :
    IsPrime = True
    InputNum = int(InputStr)
    print(i, "is a prime number.")
# If the number IS NOT prime, then prompt the user to enter either a positive integer or -1 to quit
InputStr = input("\n "Enter a positive integer value (-1 to quit): ")

```

Guess The Reindeer Game

8) I created a game written in Python where a player finds out how many reindeer they can list. The idea is that the player would be prompted to type in as many reindeer as they can think of. After that, they are given a score and a letter grade based on how many reindeer they got correct.

Python Code:

```

# Get a name of a reindeer from the user and store in PlayerList
DeerList = ["Dasher", "Dancer", "Prancer", "Vixen", "Comet", "Cupid", "Donner", "Blitzen", "Rudolph"]
PlayerList = []
DeerName = input("Enter a reindeer (enter 'done' to quit): ")

# Set Score to 0
Score = 0
# Set Total to 9
Total = 9
Fract = ("{0}/9".format(Score))
Per = round((Score / 9) * 100)
GradeList = ["F-", "F", "D", "D+", "C", "C+", "B", "B+", "A", "A+"]

# While Total isn't 1 and DeerName isn't done
while (Total != 1) and (DeerName != 'done') :
    if DeerName in PlayerList :
        Total = Total - 1
        print("Nuh uh uh, no repeating states allowed!")
        print("Reindeer guessed correctly:", PlayerList)

```

```
    print("Current Score:",Score)
elif DeerName in DeerList :
    PlayerList.append(DeerName)
    Score = Score + 1
    Total = Total - 1
    print("Yes, that's a reindeer!")
    print("Reindeer guessed correctly:",PlayerList)
    print("Current Score:",Score)
else :
    Total = Total - 1
    print("Nuh uh uh, that's NOT a reindeer!")
    print("Reindeer guessed correctly:",PlayerList)
    print("Current Score:",Score)
DeerName = input("Enter a reindeer: ")
# If Total is 1
if (Total == 1) :
    Score = Score + 1
    print("Congrats! You just guessed {0} out of 9 reindeer!".format(Score))
    Fract = ("Here is your score: {0}/9".format(Score))
    Per = round((Score / 9) * 100)
    print(Fract)
    print("Here is the percent of reindeer you got right: {0}%".format(Per))
    if Score == 9 :
        print("Here is your letter grade:",GradeList[9])
    if Score == 8 :
        print("Here is your letter grade:",GradeList[8])
    if Score == 7 :
        print("Here is your letter grade:",GradeList[7])
    if Score == 6 :
        print("Here is your letter grade:",GradeList[6])
    if Score == 5 :
        print("Here is your letter grade:",GradeList[5])
    if Score == 4 :
        print("Here is your letter grade:",GradeList[4])
    if Score == 3 :
        print("Here is your letter grade:",GradeList[3])
    if Score == 2 :
        print("Here is your letter grade:",GradeList[2])
    if Score == 1 :
        print("Here is your letter grade:",GradeList[1])
    if DeerName == 'done' :
        print("Here is your letter grade:",GradeList[0])
```

Guess The States Game

8) I created a game written in Python where a player finds out how many states they can list. The idea is that the player would be prompted to type in as many states as they can think of. After that, they are given a score and a letter grade based on how many states they got correct.

Python Code:

```
# Get a name of a reindeer from the user and store in PlayerList
StateList = ["Alabama", "Alaska", "Arizona", "Arkansas", "California", "Colorado", "Connecticut",
"Delaware", "Florida", "Georgia", "Hawaii", "Idaho", "Illinois", "Indiana", "Iowa", "Kansas", "Kentucky",
"Louisiana", "Maine", "Maryland", "Massachusetts", "Michigan", "Minnesota", "Mississippi", "Missouri",
"Montana", "Nebraska", "Nevada", "New Hampshire", "New Jersey", "New Mexico", "New York", "North
Carolina", "North Dakota", "Ohio", "Oklahoma", "Oregon", "Pennsylvania", "Rhode Island", "South
Carolina", "South Dakota", "Tennessee", "Texas", "Utah", "Vermont", "Virginia", "Washington", "West
Virginia", "Wisconsin", "Wyoming"]
PlayerList = []
StateName = input("Enter a state: ")
Score = 0
Total = 50
Fract = ("{} / 50".format(Score))
Per = round((Score / 50) * 100)
GradeList = ["F", "D-", "D", "D+", "C-", "C", "C+", "B-", "B", "B+", "A-", "A", "A+", "F-"]

while (Total != 1) and (StateName != 'done') :
    if StateName in PlayerList :
        Total = Total - 1
        print("Nuh uh uh, no repeating states allowed!")
        print("States guessed correctly:", PlayerList)
        print("Current Score:", Score)
    elif StateName in StateList :
        PlayerList.append(StateName)
        Score = Score + 1
        Total = Total - 1
        print("Yes, that's a state!")
        print("States guessed correctly:", PlayerList)
        print("Current Score:", Score)
    else :
        Total = Total - 1
        print("Nuh uh uh, that's NOT a state!")
        print("States guessed correctly:", PlayerList)
        print("Current Score:", Score)
    StateName = input("Enter a state: ")
if (Total == 1) or (StateName == 'done') :
    print("Congrats! You just guessed {} out of 50 states!".format(Score))
    Fract = ("Here is your score: {} / 50".format(Score))
    Per = round((Score / 50) * 100)
    print(Fract)
```

```
print("Here is the percent of states you got right: {0}%".format(Per))
if Score == 50 :
    print("Here is your letter grade:",GradeList[12])
if (Score <= 49) and (Score >= 47) :
    print("Here is your letter grade:",GradeList[11])
if (Score <= 46) and (Score >= 45) :
    print("Here is your letter grade:",GradeList[10])
if (Score <= 44) and (Score >= 43) :
    print("Here is your letter grade:",GradeList[9])
if (Score <= 42) and (Score >= 41) :
    print("Here is your letter grade:",GradeList[8])
if (Score <= 40) and (Score >= 39) :
    print("Here is your letter grade:",GradeList[7])
if (Score <= 38) and (Score >= 37) :
    print("Here is your letter grade:",GradeList[6])
if (Score <= 36) and (Score >= 35) :
    print("Here is your letter grade:",GradeList[5])
if (Score <= 34) and (Score >= 33) :
    print("Here is your letter grade:",GradeList[4])
if (Score <= 32) and (Score >= 31) :
    print("Here is your letter grade:",GradeList[3])
if (Score <= 30) and (Score >= 29) :
    print("Here is your letter grade:",GradeList[2])
if (Score <= 28) and (Score >= 27) :
    print("Here is your letter grade:",GradeList[1])
if (Score <= 26) and (Score >= 25) :
    print("Here is your letter grade:",GradeList[0])
if (Score <= 24) and (Score >= 0) :
    print("Here is your letter grade:",GradeList[13])
```
