```python
#Functions Challenge 32:  The Python Calculator App

def add(a, b):
    """Add two numbers and return the sum"""
    summation = round(a+b, 4)
    print("The sum of " + str(a) + " and " + str(b) + " is " + str(summation) + ".")
    return str(a) + " + " + str(b) + " = " + str(summation)


def subtract(a, b):
    """Subtract two numbers and return the difference"""
    difference = round(a-b, 4)
    print("The difference of " + str(a) + " and " + str(b) + " is " + str(difference) + ".")
    return str(a) + " - " + str(b) + " = " + str(difference)


def multiply(a, b):
    """Multiply two numbers and return the product"""
    product = round(a*b, 4)
    print("The product of " + str(a) + " and " + str(b) + " is " + str(product) + ".")
    return str(a) + " * " + str(b) + " = " + str(product)


def divide(a, b):
    """Divide two numbers and return the quotient"""
    #Perform the division if the denominator is not zero
    if b != 0:
        quotient = round(a/b, 4)
        print("The quotient of " + str(a) + " and " + str(b) + " is " + str(quotient) + ".")
        return str(a) + " / " + str(b) + " = " + str(quotient)
    #Denominator is zero, result in error
    else:
        print("You cannot divide by zero.")
        return "DIV ERROR"


def exponent(a, b):
    """Take a number to a power and return the result"""
    power = round(a**b, 4)
    print("The result of " + str(a) + " raised to the " + str(b) + " power is " + str(power) + ".")
    return str(a) + " ** " + str(b) + " = " + str(power)


#The main code
print("Welcome to the Python Calculator App")
print("Enter two numbers and an operation and the desired operation will be performed.")

history = []
running = True

while running:
    #Get user input
    num1 = float(input("\nEnter a number: "))
    num2 = float(input("Enter a number: "))
    operator = input("Enter an operation (addition, subtraction, multiplication, division, or exponentiation): ").lower()\

    #Call the appropriate function based on the value of operator
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58      if operator == 'addition' or operator == 'a':
59          result = add(num1, num2)
60      elif operator == 'subtraction' or operator == 's':
61          result = subtract(num1, num2)
62      elif operator == 'multiplication' or operator == 'm':
63          result = multiply(num1, num2)
64      elif operator == 'division' or operator == 'd':
65          result = divide(num1, num2)
66      elif operator == 'exponentiation' or operator == 'e':
67          result = exponent(num1, num2)
68      else:
69          print("That is not a valid operation.  Try again.")
70          result = "OPP ERROR"
71
72      #Append the mathematical result to the history
73      history.append(result)
74
75      #Allow user to quit
76      choice = input("Would you like to run the program again (y/n): ").lower()
77      if choice != 'y':
78          print("\nCalculation Summary: ")
79          for calc in history:
80              print(calc)
81          print("\nThank you for using the Python Calculator App.  Goodbye.")
82          running = False
```