

Exercise 5: Playing with Number

Pseudocode:

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Step 1: Display a menu with options a\k

Step 2: Ask the user to choose an option

Step 3: If the user chooses option 'a' (if the user doesn't choose 'a' go to step 4)

3.1. Ask the user to input a number

3.2. Reverse the number using a while loop

3.3. Print the reversed number

Step 4: If the user chooses option 'b'(if the user doesn't choose 'b' go to step 5)

4.1. Ask the user to input a number

4.2. Convert the number to a string

4.3. Get the length of the string using the size\(\) function

4.4. Print the length of the string

Step 5: If the user chooses option 'c' (if the user doesn't choose 'c' go to step 6)

5.1. Ask the user to input a number

5.2. Initialize a variable 'sum' to 0

5.3. Extract each digit of the number using a while loop

5.4. Add each digit to 'sum'

e\ Print 'sum'

Step 6: If the user chooses option 'd'(if the user doesn't choose 'd' go to step 7)

6.1. Ask the user to input a number

6.2. Initialize a variable 'prod' to 1

6.3. Extract each digit of the number using a while loop

6.4. If the digit is even, multiply it with 'prod'

6.5. Print 'prod'

Step 7: If the user chooses option 'e'(if the user doesn't choose 'e' go to step 8)

7.1. Ask the user to input a number

- 7.2. Convert the number to a string
- 7.3. Get the first and last characters of the string using string indexing
- 7.4. Convert the characters to integers and add them
- 7.5. Print the sum

Step 8: If the user chooses option 'f'(if the user doesn't choose 'f' go to step 9)

- 8.1. Ask the user to input a number
- 8.2. Convert the number to a string
- 8.3. Swap the first and last characters of the string using string indexing
- 8.4. Convert the string back to an integer
- 8.5. Print the new integer

Step 9: If the user chooses option 'g'(if the user doesn't choose 'g' go to step 10)

- 9.1. Ask the user to input a number
- 9.2. Reverse the number using a while loop and store it in a new variable
- 9.3. If the reversed number is equal to the original number, print "Palindrome"
else, print "Not palindrome"

Step 10: If the user chooses option 'h'(if the user doesn't choose 'h' go to step 11)

- 10.1. Ask the user to input a number
- 10.2. Initialize an array 'freq' with 10 elements and set all elements to 0
- 10.3. Extract each digit of the number using a while loop
- 10.4. Increment the corresponding element of 'freq' for each digit
- 10.5. Print the frequency table using a for loop

Step 11: If the user chooses option 'i'((if the user doesn't choose 'i' go to step 12)

- 11.1. Ask the user to input a number
- 11.2. Convert the number to a string
- 11.3. Initialize a variable 'sum' to 0
- 11.4. Extract each digit of the number using a for loop
- 11.5. Cube each digit and add it to 'sum'
- 11.6. If 'sum' is equal to the original number, print "Armstrong"

else, print "Not Armstrong"

Step 12: If the user chooses option 'j'(if the user doesn't choose 'j' go to step13)

12.1. Ask the user to input a number

12.2 Convert the number to a string

12.3 Initialize a variable 'sum' to 0

12.4. Extract each digit of the number using a for loop

12.5. Calculate the factorial of each digit and add it to 'sum'

12.6. If 'sum' is equal to the original number, print "Strong"

else, print "Not Strong"

Step 13: If the user chooses option 'k'

13.1. Ask the user to input a number

13.2. Initialize a variable 'sum' to 0

13.3. Use a for loop to iterate from 1 to $\sqrt{\text{number}}$

13.4. If the current number is a divisor of the original number, add it to 'sum'

13.5. If 'sum' is equal to the original number, print "Perfect"else, print "Not Perfect"

Sample menu:

Choose an option:

- a) Reverse a number
- b) Count the number of digits in a given number
- c) Find the sum of the digits of a given number
- d) Find the product of even digits of a given number
- e) Print the first and last digit of a number and find their sum
- f) Swap the first and last digit of a number
- g) Check whether a number is palindrome or not
- h) Find the frequency of each digit in a given integer and print in table format
- i) Check if a number is Armstrong or not
- j) Check if a number is Strong or not
- k) Check whether a number is Perfect number or not







