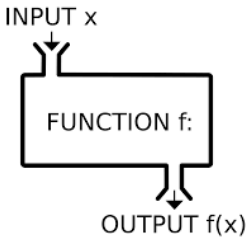
Practical No 6 **Date:** / /2022

Title: Write a Python Program to implement the following:
a) Create a phonebook by taking N names and phone number from input, store as dict of (name, number). Then ask user to enter a number and print the name of person after searching for the number.
b) Print the reverse of given integer using function.
c) Write a function is_prime() that returns 1 if the argument passed to it is a prime number and 0 otherwise.
d) Write a function that accepts an integer between 1 to 12 to represent the month number and displays the corresponding month of the year.
e) Write a program in python to create a class which can accept N numbers and functions to read data, sort data and display it.

Description:

Functions in Python:

Functions are designed to process the input data and produce the output as per requirement as shown below.



- Can be assigned to a variable
- Can be passed as a parameter
- Can be returned from a function
- Functions are treated like any other variable in Python, the def statement simply assigns a function to a variable

Syntax:

```
def function_name(list of parameters) :
    statements
```

Example:

```
def max(x,y) :
    if x > y :
        return x
    else :
        return y
```

Class:

Class is a way to bind data with its member functions. A class consists of – variable and functions on these variables. It is one of the way of hiding the data from the user

Two Special functions

- Constructor
- Destructor

Syntax:

Class classname:
Def __init__(self)
#Stements in constructor
Def functionname(parameter list)
#Statements

Example:

```
class Foo:
    def __init__(self):
        self.member = 1
    def GetMember(self):
        return self.member
```

Program Code:

a)

```
def create():
    phonebook={}
    n=int(input("enter number of entries:"))
    for i in range(n):
        name=input("enter name:")
        num=int(input("enter phone number:"))
        phonebook[num]=name
    return phonebook

def search(phonebook):
    searchnum=int(input("number whose name to be found:"))
    if searchnum in phonebook:
        print("the number belongs to:",phonebook[searchnum])
    else:
        print("contact not found")

contact=create()
search(contact)
```

b)

```
[15] def reverse(n):

        rev=0
        while(n>0):
          rem=n%10
          rev=(rev*10)+rem
          n=n//10
        return rev

     a=int(input("enter integer:"))
     print("the reverse of above integer is:",reverse(a))
```

c)

```
[18] def is_prime(n):
        for i in range(2,n):
          if (n%2==0 and n!=2):
            return 0
          else:
            return 1

     a=int(input("enter number:"))
     print("the result is : ",is_prime(a))
```

d)

```
[19] def month(monthnum):
       if (monthnum<1) or (monthnum>12):
         print("search invalid")
       else:
         months=('january','february','march','april','may','june','july','august','september','october','november','december')
         monthname=months[monthnum-1]
       return monthname

     a=int(input("enter month number:"))
     print("the", a,"th month of the year is:",month(a))
```

e)

```
class NumberProcessor:
    def __init__(self):
        self.numbers = []

    def read(self, n):
        for _ in range(n):
            num = int(input("Enter a number: "))
            self.numbers.append(num)

    def sort(self):
        self.numbers.sort()
        print("Sorted numbers (ascending order):")
        for num in self.numbers:
          print(num)

    def descending(self):
        self.numbers.sort(reverse=True)
        print("Sorted numbers (descending order):")
        for num in self.numbers:
          print(num)



processor = NumberProcessor()

while True:
        print("\nMenu:")
        print("1. Input data")
        print("2. Sort data in ascending order")
        print("3. Sort data in descending order")

        print("4. Exit")

        choice = input("Enter your choice: ")

        if choice == '1':
            n = int(input("Enter the number of data points: "))
            processor.read(n)
        elif choice == '2':
            processor.sort()
        elif choice == '3':
            processor.descending()
```

```
elif choice == '4':
    break
else:
    print("Invalid choice. Please select a valid option.")
```

Input and Output

a)

```
enter number of entries:3
enter name:qwerty
enter phone number:9876
enter name:kjhg
enter phone number:5432
enter name:cghf
enter phone number:7689
number whose name to be found:7689
the number belongs to: cghf
```

b)

```
enter integer:6754
the reverse of above integer is: 4576
```

c)

```
enter number:3
the result is :  1
```

d)

```
enter month number:3
the 3 th month of the year is: march
```

e)

```
Menu:
1. Input data
2. Sort data in ascending order
3. Sort data in descending order
4. Exit
Enter your choice: 1
Enter the number of data points: 3
Enter a number: 6
Enter a number: 89
Enter a number: 3

Menu:
1. Input data
2. Sort data in ascending order
3. Sort data in descending order
4. Exit
Enter your choice: 2
Sorted numbers (ascending order):
3
6
89

Menu:
1. Input data
2. Sort data in ascending order
3. Sort data in descending order
4. Exit
Enter your choice: 3
Sorted numbers (descending order):
89
6
3

Menu:
1. Input data
2. Sort data in ascending order
3. Sort data in descending order
4. Exit
Enter your choice: 4
```

Conclusion: Thus we have implemented various functions and class in Python.

Practice programs:

1. Write a Python Program to validate the date without using any library function.
2. Write a Python program to which show the usage of high order functions like *map()* and *filter()*.