**Question 4 :**

from tkinter import \*

from functools import partial

import tkinter as tk

import math

#Calculator class

class Calculator:

memory=0

def \_\_init\_\_(self, master):

self.master = master

# create screen widget

self.screen = Text(master, state='disabled', width=30, height=3, foreground="black")

self.screen.grid(row=0,column=3,columnspan=4,padx=5,pady=5)

self.screen.configure(state='normal')

self.equation = ''

# create buttons using method createButton

b1 = self.createButton("MC",None)

b2 = self.createButton("M+",None)

b3 = self.createButton("M-",None)

b4 = self.createButton("MR",None)

b5 = self.createButton("C",None)

b6 = self.createButton(u"\u221A",None)

b7 = self.createButton("x"+u"\u00B2",None)

b8 = self.createButton("+")

b9 = self.createButton(7)

b10 = self.createButton(8)

b11 = self.createButton(9)

b12 = self.createButton("-")

b13 = self.createButton(4)

b14 = self.createButton(5)

b15 = self.createButton(6)

b16 = self.createButton("\*")

b17 = self.createButton(1)

b18 = self.createButton(2)

b19 = self.createButton(3)

b20 = self.createButton('/')

b21 = self.createButton('0')

b22 = self.createButton('.')

b23 = self.createButton('+-',None)

b24 = self.createButton('=',None)

buttons = [b1,b2,b3,b4,b5,b6,b7,b8,b9,b10,b11,b12,b13,b14,b15,b16,b17,b18,b19,b20,b21,b22,b23,b24]

count = 0

for row in range(1,7):

for column in range(3,7):

buttons[count].grid(row=row,column=column)

count += 1

def createButton(self,val,write=True,width=7):

return Button(self.master, text=val,command = lambda: self.click(val,write), width=width)

def click(self,text,write):

if write == None:

if text == '=' and self.equation:

self.equation= re.sub(u"\u00F7", '/', self.equation)

print(self.equation)

answer = str(eval(self.equation))

self.clear\_screen()

self.insert\_screen(answer,newline=True)

elif text == "C":

self.clear\_screen()

elif text == "MC":

self.memory=0

elif text=="M+":

self.memory+=float(self.screen.get("1.0","end"))

elif text=="M-":

self.memory-=float(self.screen.get("1.0","end"))

elif text=="MR":

self.clear\_screen()

self.insert\_screen(self.memory,newline=True)

elif text==u"\u221A":

result=math.sqrt(float(self.screen.get("1.0","end")))

self.clear\_screen()

self.insert\_screen(result,newline=True)

elif text=="x"+u"\u00B2":

result=float(self.screen.get("1.0","end"))\*float(self.screen.get("1.0","end"))

self.clear\_screen()

self.insert\_screen(result,newline=True)

elif text=="+-":

value=self.screen.get("1.0","end")

self.clear\_screen()

self.insert\_screen(float(value)\*-1)

else:

self.insert\_screen(text)

# clear csrean

def clear\_screen(self):

self.equation = ''

self.screen.configure(state='normal')

self.screen.delete('1.0', END)

# insert screan

def insert\_screen(self, value,newline=False):

self.screen.configure(state='normal')

self.screen.insert(END,value)

self.equation += str(value)

self.screen.configure(state ='disabled')

#Mortgage class

class Mortgage:

def \_\_init\_\_(self, master):

number1 = tk.StringVar()

number2 = tk.StringVar()

number3 = tk.StringVar()

labelNum1 = tk.Label(root, text="Loan Amount").grid(row=1, column=0)

labelNum2 = tk.Label(root, text="Interest rate").grid(row=2, column=0)

labelNum3 = tk.Label(root, text="Loan terms").grid(row=3, column=0)

labelResult = tk.Label(root)

labelResult.grid(row=4, column=2)

entryNum1 = tk.Entry(root, textvariable=number1).grid(row=1, column=2)

entryNum2 = tk.Entry(root, textvariable=number2).grid(row=2, column=2)

entryNum3 = tk.Entry(root, textvariable=number3).grid(row=3, column=2)

call\_result = partial(self.call\_result, labelResult, number1, number2,number3)

buttonCal = tk.Button(root, text="Compute mortgage", command=call\_result).grid(row=4, column=0)

def call\_result(self,label\_result, n1, n2, n3):

num1 = (n1.get())

num2 = (n2.get())

num3 = (n3.get())

result = ((float(num1)\*float(num2)/100)+float(num1))/float(num3)

print(result)

label\_result.config(text=str(result))

return

#Combination of those Calculator and Mortgage

class App:

def \_\_init\_\_(self,d):

Mortgage(d)

Calculator(d)

#Run the App class

root = Tk()

my\_gui = App(root)

root.mainloop()

Output:

