KJC4 4CREDITS

NARRATIVE FOR HOMEWORK 8

D1

(a)Definite vs Indefinite loop

A definite loop is one in which the number of iterations is known and determined beforehand. Thus the statements in the loop body are executed only a fixed number of times WHILE an indefinite loop iterates until certain conditions are met. The number of iterations is not known beforehand and therefore the loop executes till the condition in the loop test is evaluated to be false.

(b) For loop vs While loop

A for loop is a definite loop. In a for loop, the number of iterations is determined beforehand and the statement in the loop body are executed in a repetitive manner based on the number of iterations specified in the loop heading WHILE a while loop is the implementation of an indefinite loop in python. In a while loop, as long as a condition in the loop heading is evaluated to be true , the statements in the loop body are executed. This soon becomes infinite though, which is why we are responsible for incrementing the variable in the loop test so that at some point the program terminates.

(c) Interactive vs sentinel loop

An interactive loop is a variation of the indefinite loop. It allows the user the opportunity to have some control of the loop in the sense that the users input is requested repeatedly and then the value the user enters(typically yes or no) is tested against loop heading condition which will then determine if the statements in the loop body will be executed again or not WHILE a sentinel loop bypasses constantly asking the users if there are more inputs by making use of a special value called a sentinel. This sentinel value is not processed as part of the input and signifies the end. The actual value of the sentinel is picked based on the specific scenario and data inputted is processed till this sentinel value is reached.

(d) Sentinel loop vs End-of-file loop

As earlier stated, a sentinel loop makes use of a sentinel which is a terminal value used in interactive programs to signify the end WHILE an end of file loops is mostly used in data processing applications where values have been typed into files and then the values are read from those files line by line. In python, the end of file loop is demonstrated using the readline method. The readline method returns an empty string at the end of the file so the empty string is used as the sentinel value telling the program where to end similar to a sentinel loop.

D3

**a)def** main() :  
  
 print(**"ThiS program finds the sum of the first n counting numbers"**)  
 total\_sum = 0  
 count = 1  
  
 num= eval((input(**"please input your n:"**)))  
 **while** count <=num:  
 total\_sum = count + total\_sum  
 count =count +1  
 print(**"the sum is"** ,total\_sum)  
   
 main()

b) **def** main() :  
  
 print(**"This program finds the sum of the first n odd numbers"**)  
 total\_sum = 0  
 count = 1  
  
 num= eval((input(**"please input your n:"**)))  
 **while** count <=(2\*num)-1:  
 total\_sum = count + total\_sum  
 count =count +2  
 print(**"the sum is"** ,total\_sum)  
  
 main()

c) **def** main():  
  
 sum = 0  
 num = eval(input(**"please input a number:"**))  
 sum = sum + num  
 **while** num!= 999:  
  
 num = eval(input(**"please input next number:"**))  
 **if** num == 999:  
 **break  
 else** :  
 sum = sum + num  
 print (**"sum is"** ,sum)  
 main()

4CR\_1

I opened the Dracula file for reading. I initialized a variable “count” as 0. I used count in my while loop test to ensure that only the first 10 lines in the Dracula file were read in and printed out. I used readline to read in each line one by one and the count variable was incremented with each execution of the while loop. After which I closed the Dracula file.

4CR\_2

I opened the Dracula file for reading . I read in the file used the read() method and created two variables “beg “ and “end” to serve as indices for where I wanted to start slicing from and where I wanted to end the slicing operation. I then store the text I sliced in a variable ”table\_of\_contents” and split it based on “\n”. I stored the resulting list in mylist. I initialized a variable “count” as 0. I used the count variable in my while loop test and as an index to ensure only the first 15 lines of the table\_of\_contents were printed out. I incremented my counter with each execution of the while loop. After which I closed the file.