Project Report

On

ADVENTURE FOR Ring & Key

Session 2018-19

BASIC PYTHON

Submitted By
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TABLE OF CONTENTS

STUDENT’S DECLARATION

I hereby declare that the work being presented in this report entitled ADVENTURE FOR RING & KEY is an authentic record of my own Work carried out under the supervision of Ms. DEEPANSHI.

The matter embodied in this report has not been submitted by me for the award of any other degree.

Dated:

Signature of student

(Name : Priyanshi Garg)

Department:CBSE

This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

Signature of Supervisor

CHAPTER 1

INTRODUCTION

As indicated by the name “Adventure For Ring & Key”, it is a game in which you have to find the key & ring from a house which consists of eight rooms and one garden without getting into monster’s room. There are four levels in this game. During Python Training in our College, we have instructed to make a project in order to improve our programming skills. Then I searched for the project on the internet and found this one. But in internet description, they have only with two rooms and one garden then in order to make it more interesting and somewhat difficult ,I make this game for eight rooms with one garden.

1.1. PROBLEM INTRODUCTION

1.1.1. Motivation

The biggest motivation behind this project is to improve the programming skills in python and to do practice. Really, programming is fun as I make this interesting game with just few lines of code.

1.1.2. Project Objective

The objective of this Project is to traverse the house consisting of eight rooms and one garden and to get key and ring which is in two rooms of the house. The minimum condition to win each level is not to enter in room in which the monster is present.

In some levels, you have to fulfill some extra conditions such as to keep in mind the no. of steps to be taken , no. of seconds to complete level.

1.1.3. Scope of the Project

The game in the Project consists of four levels with difficulty level increasing from one to other level. The description of each level is as follows:

- ***In level 1***, the task is to bring any one of the item i.e., either key or ring in garden.
- In level 2, the task is to bring both the items i.e., both key and ring in garden.
- In level 3, the task is same as in level 2 but needs to be done in minimum no. of steps i.e., in eight or less than in eight steps.
- In level 4, the task is same as in level 2 but needs to be completed in maximum thirty seconds.
- The condition that is to be fulfilled in each level is not to enter the monster's room.

1.2. INTRODUCTION TO TECHNOLOGIES

1.2.1. Language

Python is a simple, general purpose, high level, interpreted, and object-oriented programming language. It is discovered by Guido Van Rossum in 1991. Its Features are :

- ➢ It is a Cross-Platform as well as Portable Language.
- ➢ It has got name "Python" because its founder was very fond of character Monty Python.

- Python is also called as "Batteries Included" because it's all libraries are very fast in execution.
- It is known as a multiprogramming language because it can be used with web, enterprise, 3D CAD, etc.
- As it is a interpreted language, so it makes debugging very fast.

1.2.2. Library / In-Built Programs / module

In this project, I used the module "time". There is a function called time() in this module which calculates the time from January 1,1970 , 00:00:00 which is known as epoch (the point where time begins). I used this module in level 4 of my game where I have to restrict the player's playing time to thirty seconds.

1.2.3. Hardware Requirement

During project design phase, the hardware used are:

- Processor
- Fans and heat sinks
- Keyboard
- RAM
- Hard Drive
- Touchpad

1.2.4. Software Requirement

During project design phase, the software used are:

- Microsoft Word from Microsoft Office

- Windows 10, an OS as well as a Software, as OS is a superset of software and application programs.

1.2.5. IDE

During the design phase, I extensively use Anaconda for writing code. Anaconda is a free and open source distribution of Python and R programming languages for scientific computing that aims to simplify package management and deployment. Package versions are maintained by the package management system conda. Anaconda is written in Python.

CHAPTER 2

SYSTEM DESIGN

Here in this chapter, I am going to introduce the approach used for this project and explain the whole code thoroughly along with the outputs I get in each case.

2.1 ALGORITHM / APPROACH

In this project, we have used the approach of functions to describe each room of the house. In each function definition, we call the other room function according to the movement of the player. And Whenever the player enters the room with monster, the program finishes and the player lose the game.

The algorithm is as follows:

Step1 Start.

Step2 Whenever the user starts the game, he finds himself him in the hall. So first of all we design the hall function. In that we created a dictionary, with key value consists of the direction entered by the user and there values consists of statements instructing player about in which room they enter.

Step3 Then we create a while loop which always evaluates to true and as per the player mentioned direction , the player is shifted in that direction i.e., the function of room in that direction is called and the control then shifts to that function.

Step 4 If player wants to quit the game, then he/she have to enter -1, then the program execution finishes and player is quit out of the game.

Step 5 To introduce the logic for key & ring, we declare a global list and in that room function which contains key or ring and append the string “key” or “ring” in list, and print the list altogether.

Step 6 To introduce the logic of level 1, we checked the condition in garden function that if either key or ring is find, then exit the while loop of that function and exit out of the program and Player wins.

Step 7 To introduce the logic of level 2, we checked the condition in garden function for whether both the ring and key is find. If yes, then the user wins and exit out of the program.

Step 8 For level 3, the player has to fulfill the task of level 2 by keeping in mind the maximum no. of steps to be taken i.e., 8. No. of steps can be calculated by introducing a global counter in each function and then comparing the counter with 8 in garden function. If the counter exceeds 8, then the player will lose level 3.

Step 9 For level 4, the player has to fulfill the task of level 3 by keeping in mind the time taken to complete the task. For this we use the module time which helps in calculating 30 sec from the start. If the player is able to accomplish the level 2 task with 30 sec, then he/she wins else they lose level 4.

Step 10 Whenever the player enters any room with monster then he/she immediately lose the game.

Step 11 Finish.

2.2 WORK FLOW DIAGRAM

In my project, I make nine modules and a few lines of text to enter into a module called “hall” and then the control of the program traverse through all the modules according to the instruction.

Flow Chart to Initiate Program And To Enter Into hall() Function

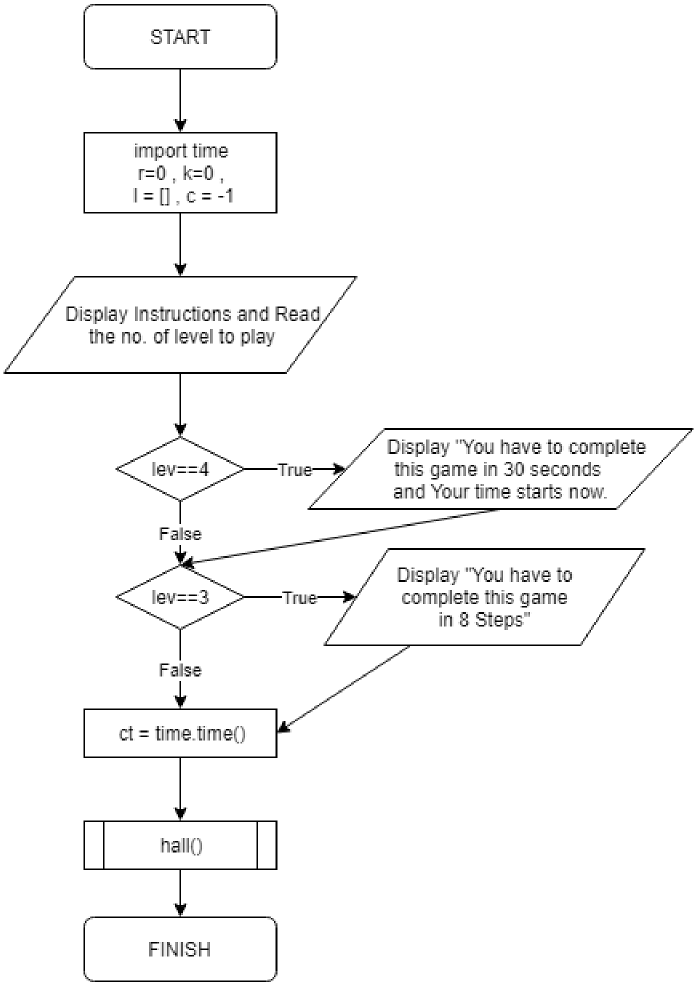
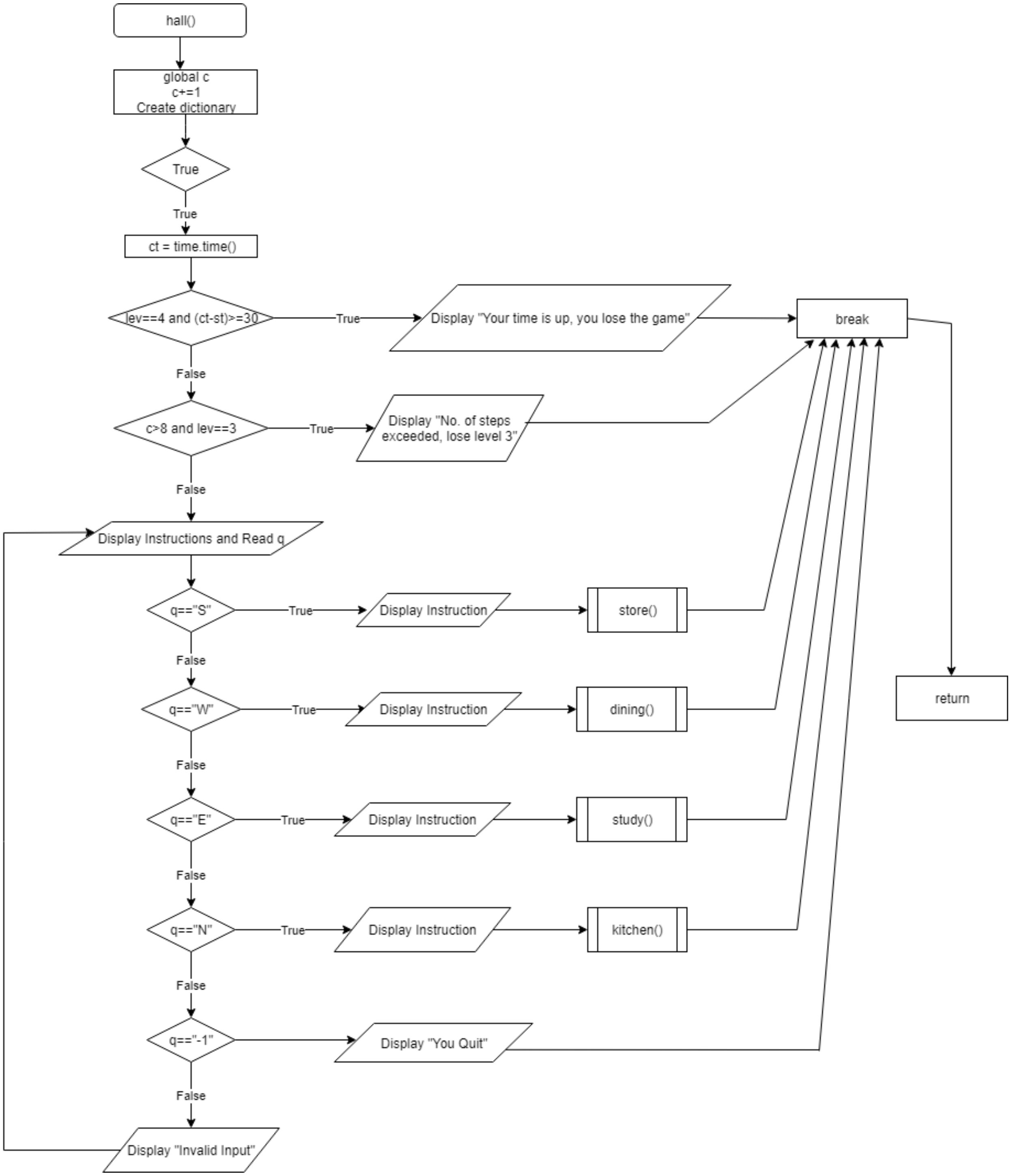
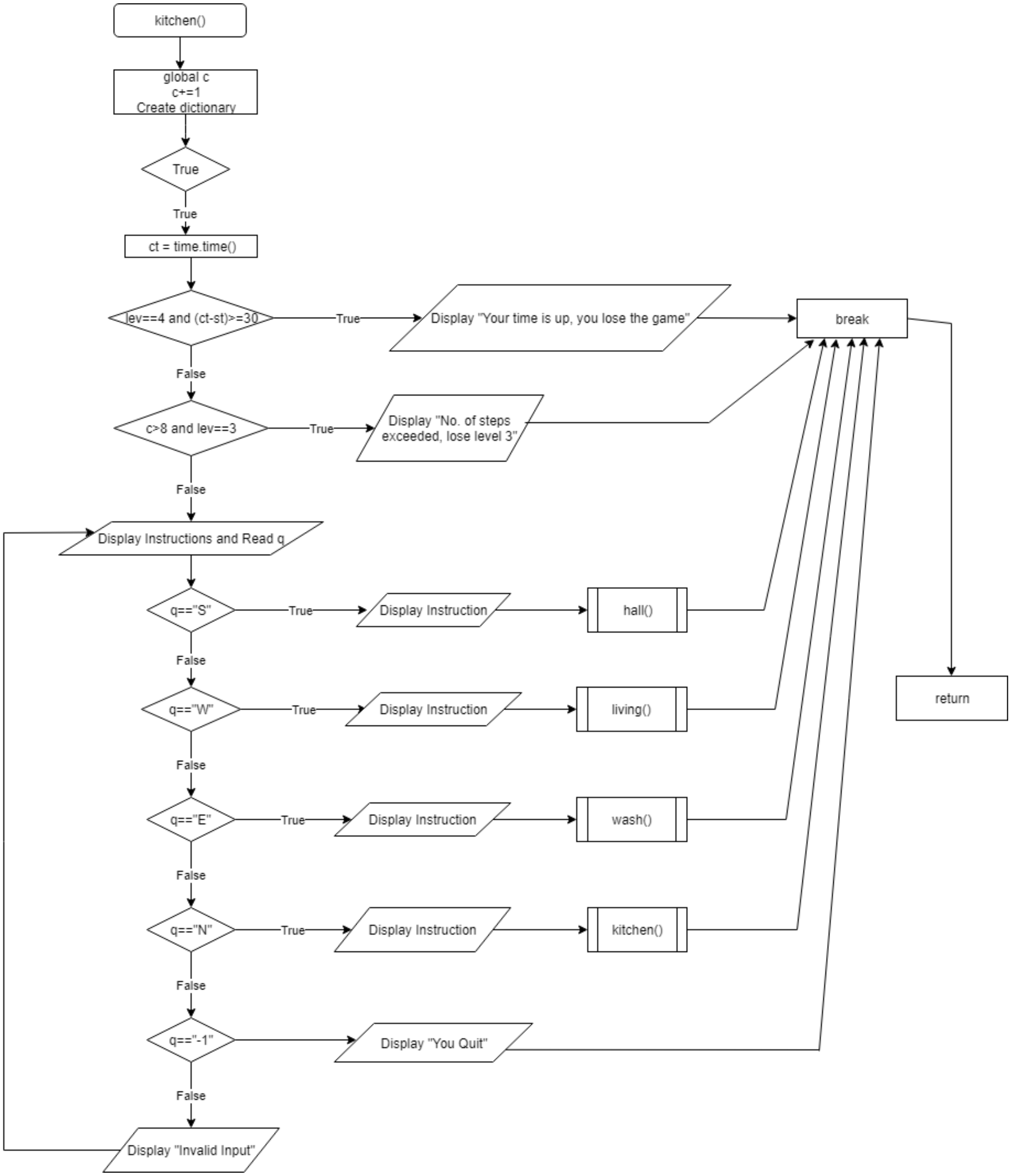

START
import time
r=0 , k=0 ,
l = [] , c = -1
Display Instructions and Read the no. of level to play
lev==4
True
Display "You have to complete this game in 30 seconds and Your time starts now.
False
lev==3
True
Display "You have to complete this game in 8 Steps"
False
ct = time.time()
hall()
FINISH

Fig.1. fjwhsuwjsbjw

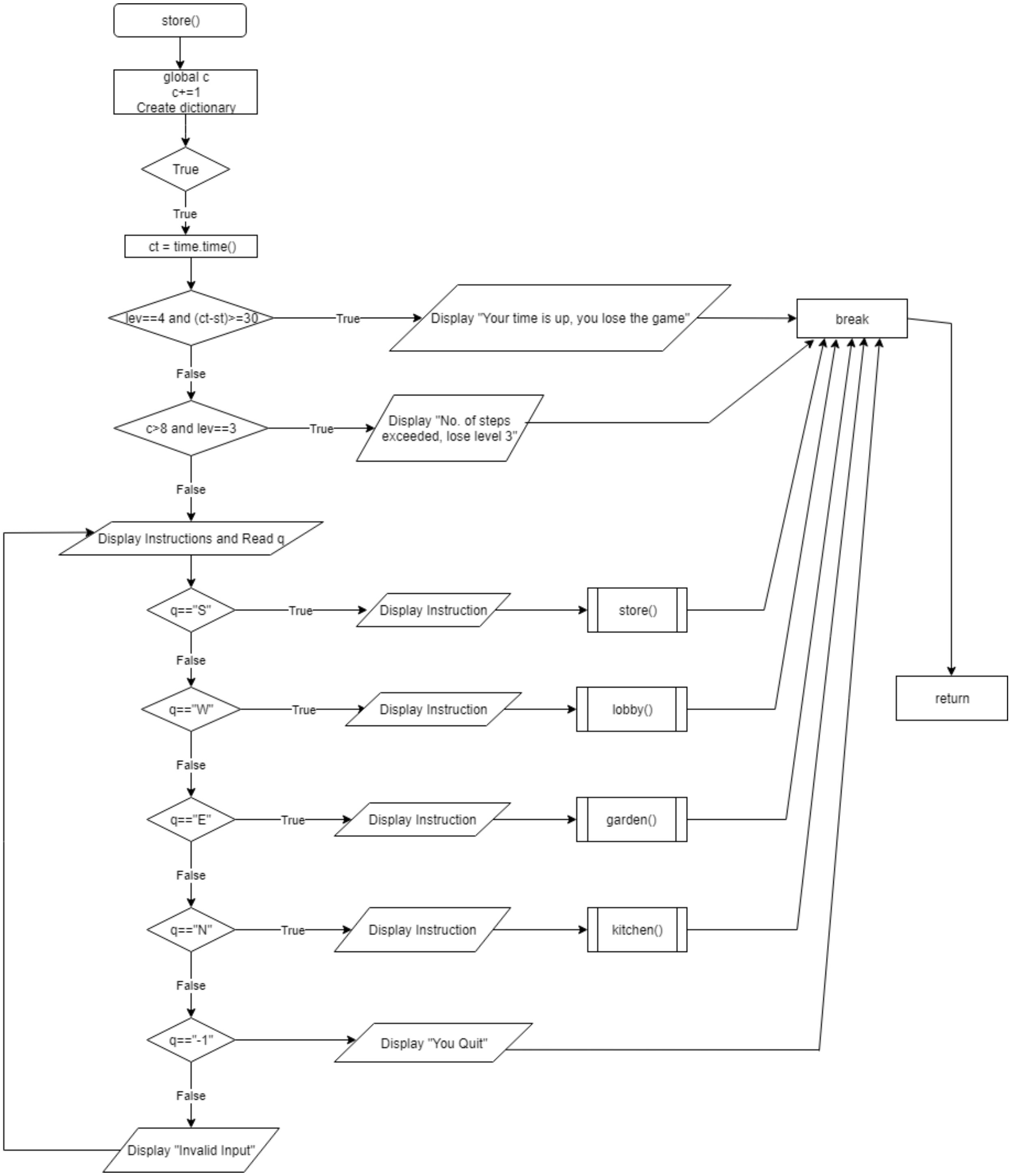
Flow Chart of hall() Module



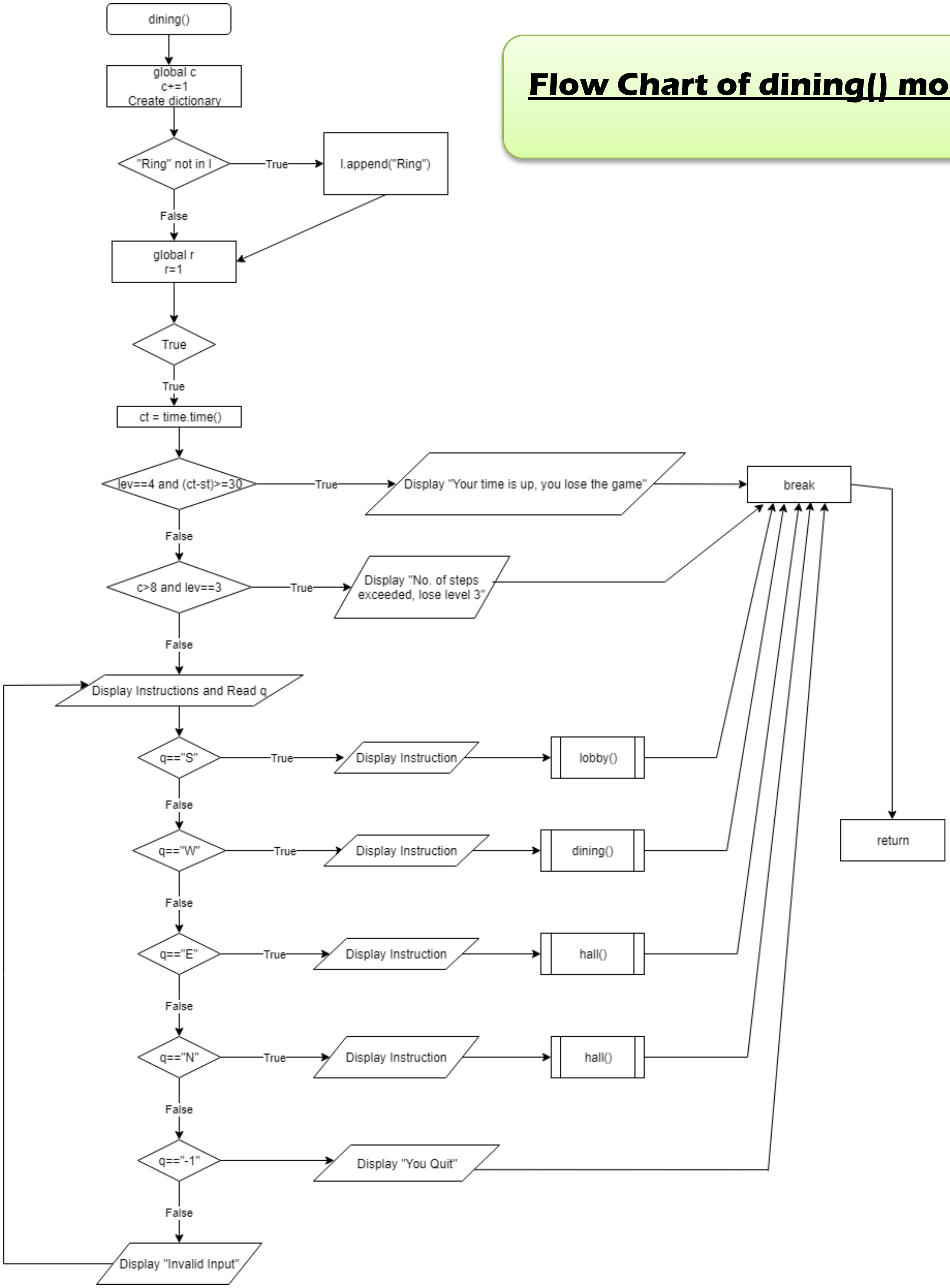
Flow Chart of kitchen() module



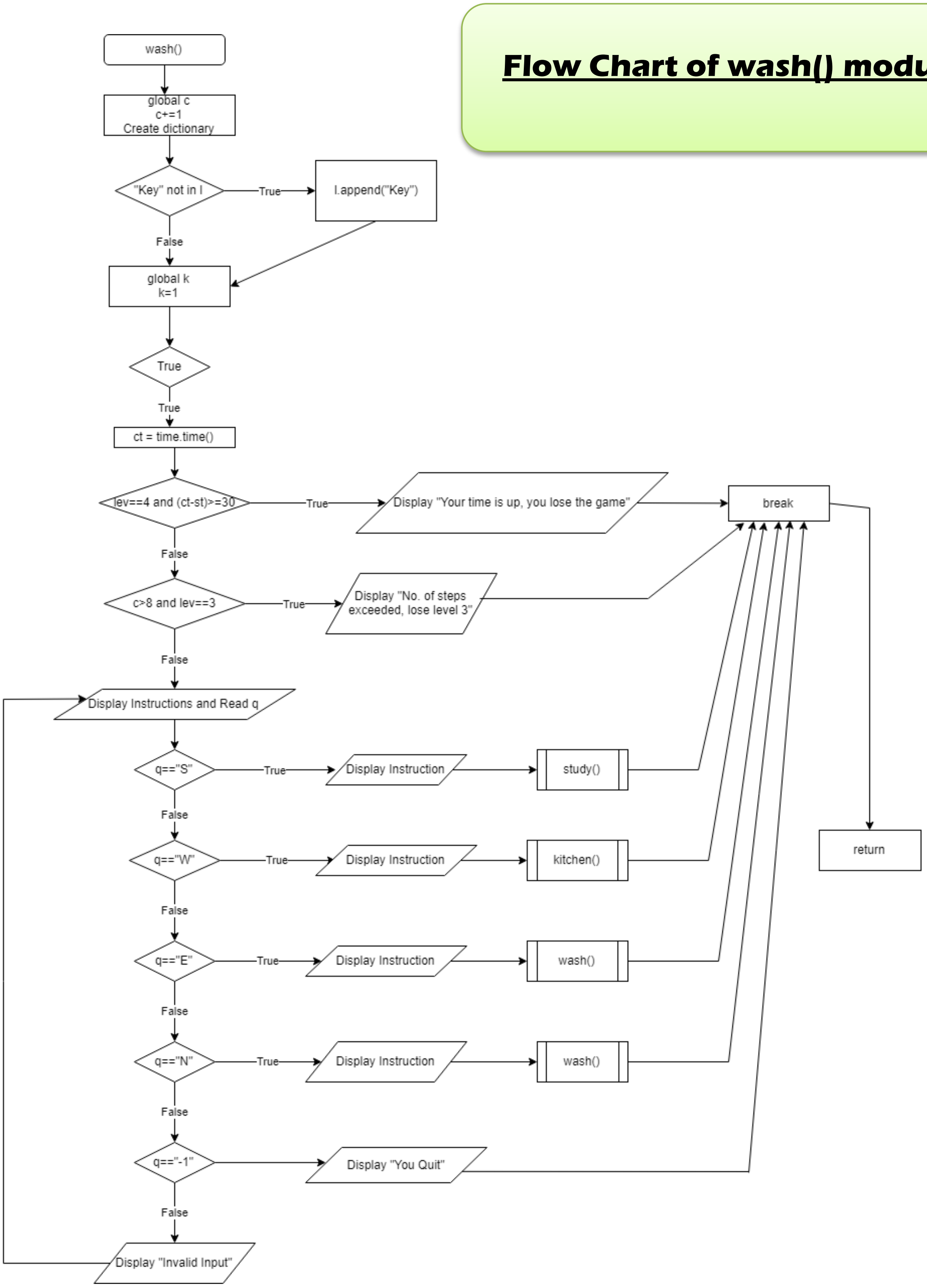
Flow Chart Of store() module



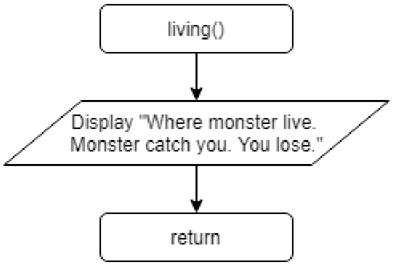
Flow Chart of dining() module



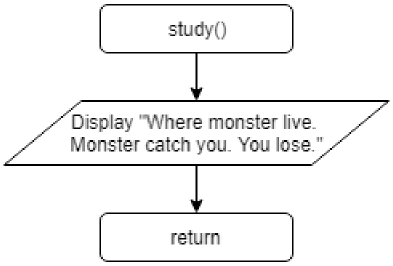
Flow Chart of wash() module



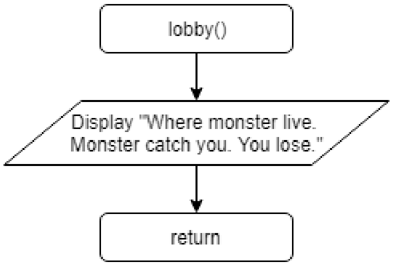
Flow Chart of living() module



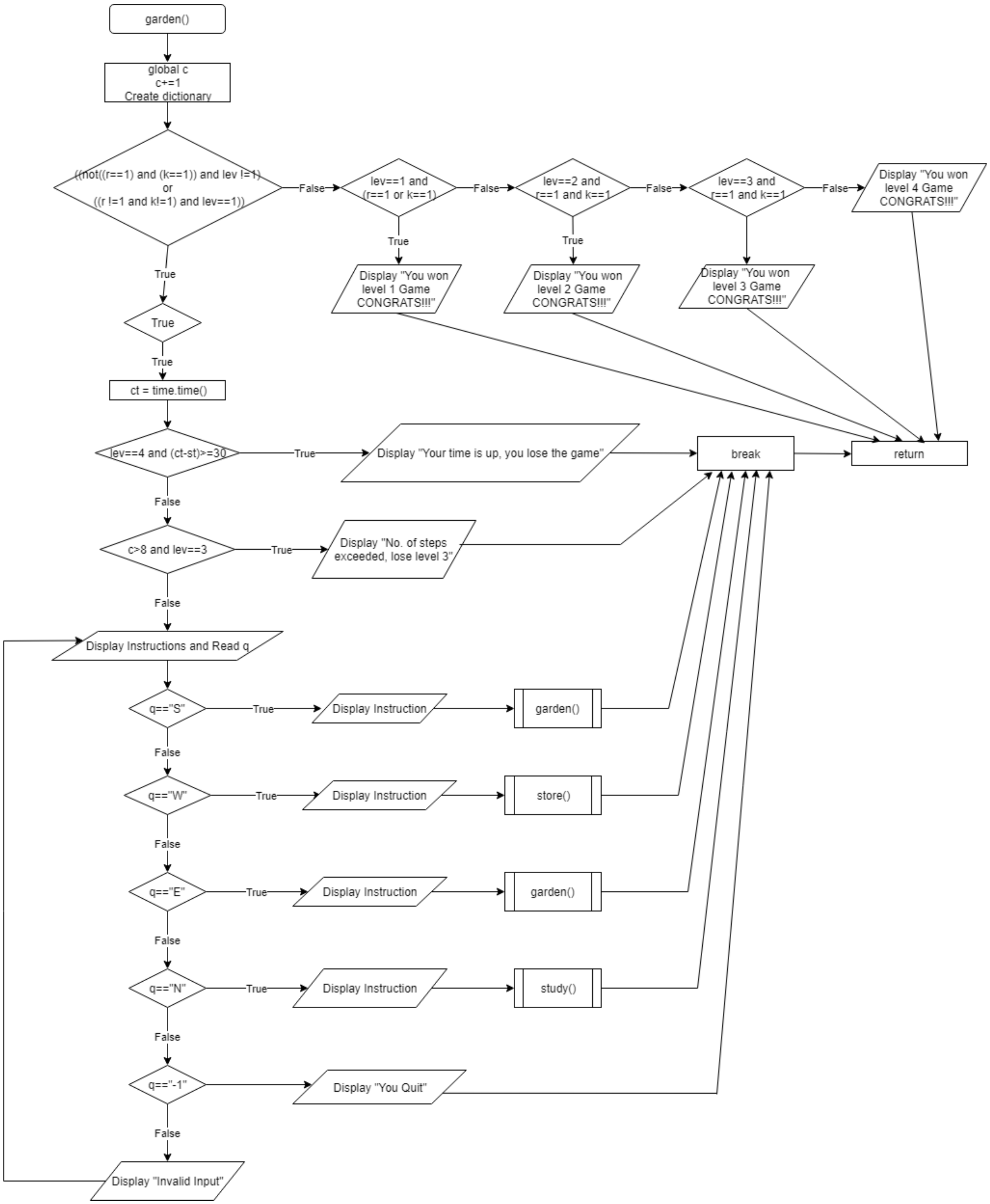
Flow Chart of study() module



Flow Chart of lobby() module



Flow Chart of garden() module



2.3 EXPLAINING THE CODE

```
c=-1     # Global  variable

def hall():     #hall() module

    global c

    c+=1              # Incrementing c by 1

    h={"N":"You are in kitchen","E":"You are in Study room","W":"You are in Dining
room","S":"You are in Store"}  # Defining Dictionary

    while 1:

        ct=time.time()    #Calculating time using time()

        if((lev==4)and(ct-st>=30)):  # Checking condition for losing level 4

            print("Your time up\nYou Lose Level 4 Game")

            break             # Breaking out of the loop

        if(c>8 and lev==3):      # Checking condition for losing level 3

                print("Number Of Steps Exceeded\nYou Lose The Level 3 Game")

                break             # Breaking out of the loop

        print("you have ",l)

        print("Enter -1 to quit")

        print("Enter Direction to move : ")

        q=input()      # Enter direction to move

        if(q=="S"):

            print(h.get(q))

            store()   # Calling store module if user enters South

            break

        elif(q=="W"):

            print(h.get(q))
            dining()        # Calling dining module if user enters West
            break
        elif(q=="E"):
            print(h.get(q))
            study()         # Calling study module if user enters East
            break
        elif(q=="N"):
            print(h.get(q))
            kitchen()       # Calling kitchen module if user enters North
            break
        elif(q=="-1"):
            print("You Quit")
            break           # Entering out of the loop if user enters -1
        else:
            print("Invalid input")
    return
def kitchen():  #kitchen module
    global c
    c+=1        # Incrementing c by 1
    k={"N":"You can't move further in this direction","E":"You are in Washroom","W":"You are in Living room","S":"You are in Hall"}        # Defining Dictionary
    while 1:
        ct=time.time()          #Calculating time using time()
        if((lev==4)and(ct-st>=30)):  # Checking condition for losing level 4
            print("Your time up\nYou Lose Level 4 Game")
            break     # Breaking out of the loop
```

```
if(c>8 and lev==3):        # Checking condition for losing level 3
        print("Number Of Steps Exceeded\nYou Lose The Level 3 Game")
        break        # Breaking out of the loop
print("you have ",l)
print("Enter -1 to quit")
print("Enter Direction to move : ")
q=input()                    # Enter direction to move
if(q=="S"):
    print(k.get(q))
    hall()       # Calling hall module if user enters South
    break
elif(q=="W"):
    print(k.get(q))
    living()       # Calling living module if user enters West
    break
elif(q=="E"):
    print(k.get(q))
    wash()       # Calling wash module if user enters East
    break
elif(q=="N"):
    print(k.get(q))
    kitchen()       # Calling kitchen module if user enter North
    break
elif(q=="-1"):
    print("You Quit")
    break                    # Entering out of the loop if user enters -1
```

```
        else:
            print("Invalid input")
    return
def store():        #store module
    global c
    c+=1        # Incrementing c by 1
    s={"N":"You are in Hall","E":"You are in Garden","W":"You are in Lobby","S":"You can't move further in this direction"}        # Defining Dictionary
    while 1:
        ct=time.time()      #Calculating time using time()
        if((lev==4)and(ct-st>=30)):   # Checking condition for losing level 4
            print("Your time up\nYou Lose Level 4 Game")
            break          # Breaking out of the loop
        if(c>8 and lev==3):        # Checking condition for losing level 3
                print("Number Of Steps Exceeded\nYou Lose The Level 3 Game")
                break  # Breaking out of the loop
        print("you have ",l)
        print("Enter -1 to quit")
        print("Enter Direction to move : ")
        q=input()      # Enter direction to move
        if(q=="S"):
            print(s.get(q))
            store()        # Calling store module if user enters South
            break
        elif(q=="W"):
            print(s.get(q))
            lobby()          # Calling lobby module if user enters West
            break
        elif(q=="E"):
            print(s.get(q))
            garden()           # Calling garden module if user enters East
            break
        elif(q=="N"):
            print(s.get(q))
            hall()           # Calling hall module if user enters North
            break
        elif(q=="-1"):
            print("You Quit")
            break            # Entering out of the loop if user enters -1
        else:
            print("Invalid input")
    return
def living():        #living module
    print("Where monster live.\nMonster catch you\nYou lose") # Instruction indicating
                                                               #game losing reason
    return
def lobby():          #lobby module
    print("Where monster live.\nMonster catch you\nYou lose")# Instruction indicating
                                                               #game losing reason

    return
```

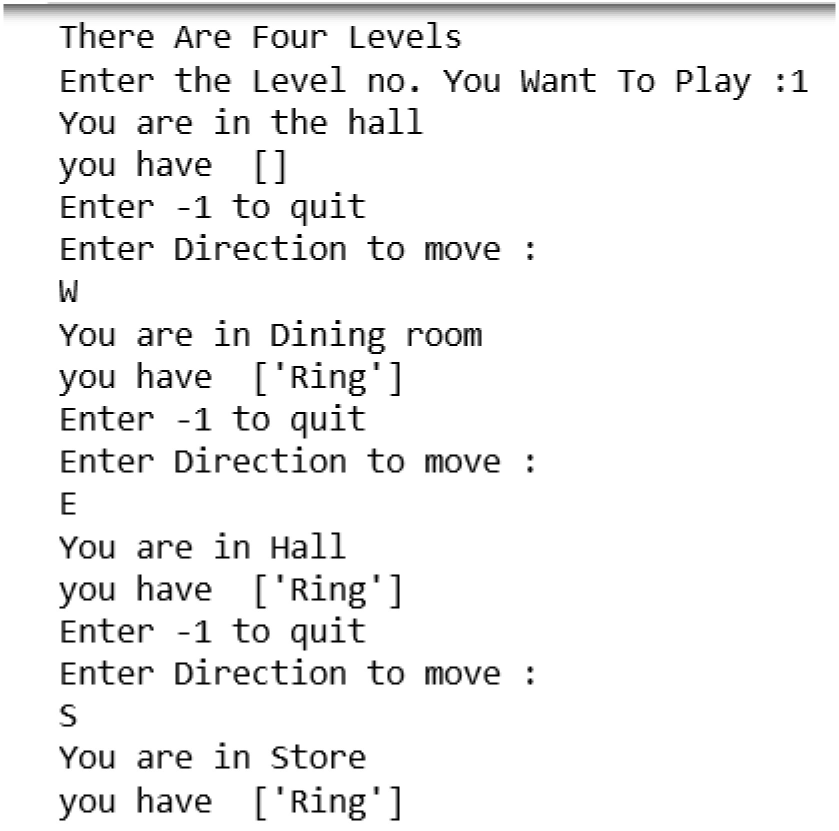
```
def study():      #study module
    print("Where monster live.\nMonster catch you\nYou lose")# Instruction indicating
                                                              #game losing reason

    return
def dining():             #dining module
    global c
    c+=1            # Incrementing c by 1
    if("Ring" not in l): # Checking for "Ring" in list
        l.append("Ring")
    global r
    r=1
    d={"E":"You are in Hall","N":"You are in Living room","S":"You are in Lobby","W":"You can't move further in this direction"}                  # Defining Dictionary
    while 1:
        ct=time.time()            #Calculating time using time()
        if((lev==4)and(ct-st>=30)):         # Checking condition for losing level 4
            print("Your time up\nYou Lose Level 4 Game")
            break         # Breaking out of the loop
        if(c>8 and lev==3):         # Checking condition for losing level 3
                print("Number Of Steps Exceeded\nYou Lose The Level 3 Game")
                break                  # Breaking out of the loop
        print("you have ",l)
        print("Enter -1 to quit")
        print("Enter Direction to move : ")
        q=input()      # Enter direction to move
        if(q=="S"):
            print(d.get(q))
            lobby()    # Calling lobby module if user enters South
            break
        elif(q=="W"):
            print(d.get(q))
            dining()    # Calling dining module if user enters West
            break
        elif(q=="E"):
            print(d.get(q))
            hall()    # Calling hall module if user enters East
            break
        elif(q=="N"):
            print(d.get(q))
            living()          # Calling living module if user enters North
            break
        elif(q=="-1"):
            print("You Quit")
            break            # Entering out of the loop if user enters -1
        else:
            print("Invalid input")
    return
def wash():     #wash module
    global c
    c+=1                  # Incrementing c by 1
    if("Key" not in l):         # Checking for “Key” in list
        l.append("Key")
    global k
    k=1
    w={"E":"You can't move further in this direction","N":"You are in Washroom","S":"You are in Study room","W":"You are in Kitchen"}          # Defining Dictionary
    while 1:
        ct=time.time()     #Calculating time using time()
        if((lev==4)and(ct-st>=30)):         # Checking condition for losing level 4
            print("Your time up\nYou Lose Level 4 Game")
            break         # Breaking out of the loop
        if(c>8 and lev==3):                # Checking condition for losing level 3
                print("Number Of Steps Exceeded\nYou Lose The Level 3 Game")
                break            # Breaking out of the loop
        print("you have ",l)
        print("Enter -1 to quit")
        print("Enter Direction to move : ")
        q=input()      # Enter direction to move
        if(q=="S"):
            print(w.get(q))
            study()                # Calling study module if user enters South
            break
        elif(q=="W"):
            print(w.get(q))
            kitchen()          # Calling kitchen module if user enters West
            break
        elif(q=="E"):
            print(w.get(q))
            wash()              # Calling wash module if user enters East
            break
        elif(q=="N"):
            print(w.get(q))
            wash()      # Calling wash module if user enters North
            break
        elif(q=="-1"):
            print("You Quit")
            break               # Entering out of the loop if user enters -1
        else:
            print("Invalid input")
    return
def garden():       #garden module
    global c
    c+=1                        # Incrementing c by 1
    if((not((r==1) and (k==1)) and lev!=1) or ((r!=1 and k!=1)and lev==1)):
        g={"E":"You can't move further in this direction","N":"You are in Study room","S":"You are in Garden","W":"You are in Store"}       # Defining Dictionary
        while 1:
            ct=time.time()          #Calculating time using time()
            if((lev==4)and(ct-st>=30)):         # Checking condition for losing level 4
                print("Your time up\nYou Lose Level 4 Game")
                break       # Breaking out of the loop
            if(c>8 and lev==3):             # Checking condition for losing level 3
                print("Number Of Steps Exceeded\nYou Lose The Level 3 Game")
                break          # Breaking out of the loop
            print("you have ",l)
            print("Enter -1 to quit")
            print("Enter Direction to move : ")
            q=input()                # Enter direction to move
            if(q=="S"):
                print(g.get(q))
                garden()        # Calling garden module if user enters South
                break
            elif(q=="W"):
                print(g.get(q))
                store()            # Calling store module if user enters West
                break
            elif(q=="E"):
                print(g.get(q))
                garden()              # Calling garden module if user enters East
                break
            elif(q=="N"):
                print(g.get(q))
                study()          # Calling study module if user enters North
                break
            elif(q=="-1"):
                print("You Quit")
                break      # Entering out of the loop if user enters -1
            else:
```

```
                print("Invalid input")
    else:
        if(lev==1 and (r==1 or k==1)):  # Checking winning condition of level 1
            print("You Won Level 1 Game\nCONGRATS!!!")
        elif(lev==2 and r==1 and k==1):   # Checking winning condition of level 2
            print("You Won Level 2 Game\nCONGRATS!!!")
        elif(lev==3 and r==1 and k==1):   # Checking winning condition of level 3
            print("You Won Level 3 Game In %d Steps\nCONGRATS!!!"%c)
        else: #  winning condition of level 4
             print("You Won Level 4 Game \nCONGRATS!!!")
    return
import time      # importing time module
l=[]               # declaration of global variables
r=0
k=0
print("There Are Four Levels")        # Dispalying instructions
lev=int(input("Enter the Level no. You Want To Play :"))
print('Enter "N" to move upward\nEnter "S" to move downward\n Enter "E" to move right\n Enter "W" to move left')
if(lev==3):     # Dispalying instruction for level 3
    print("You Have To Complete This Game in 8 Steps")
if(lev==4):     # Dispalying instruction for level 4
    print("You Have To Complete This Game in 30 sec\nYour Time Starts Now")
print("You are in the hall")
st=time.time()    #Calculating time using time()
hall() # Calling hall() module
```

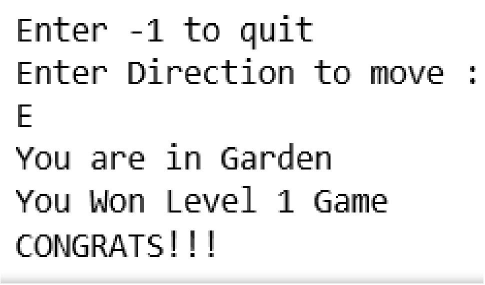
CHAPTER 3

RESULTS

Output of Level 1

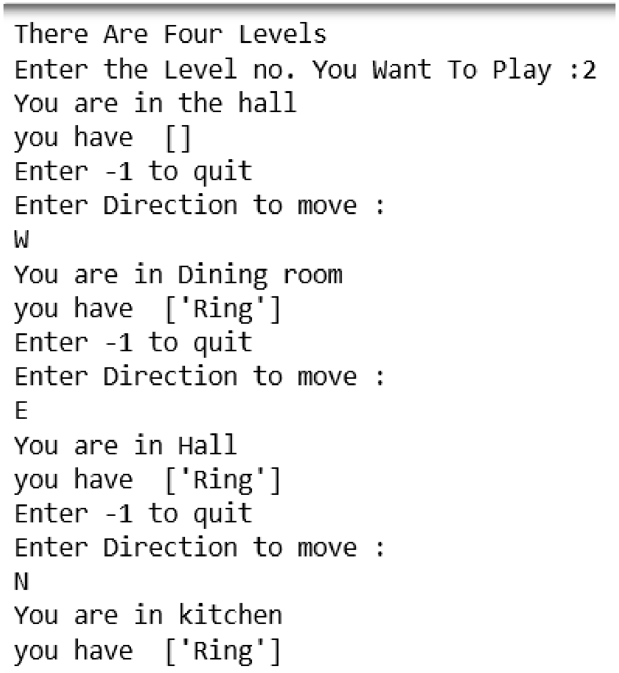


```
There Are Four Levels
Enter the Level no. You Want To Play :1
You are in the hall
you have  []
Enter -1 to quit
Enter Direction to move :
W
You are in Dining room
you have  ['Ring']
Enter -1 to quit
Enter Direction to move :
E
You are in Hall
you have  ['Ring']
Enter -1 to quit
Enter Direction to move :
S
You are in Store
you have  ['Ring']
```

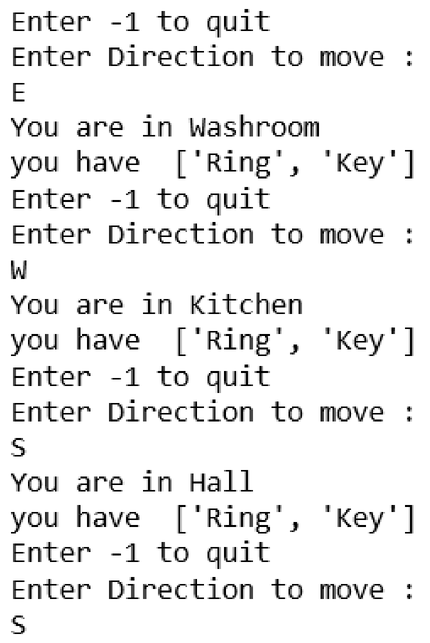


```
Enter -1 to quit
Enter Direction to move :
E
You are in Garden
You Won Level 1 Game
CONGRATS!!!
```

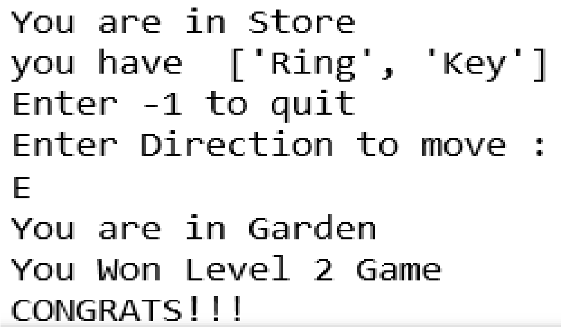
Output of Level 2



```
There Are Four Levels
Enter the Level no. You Want To Play :2
You are in the hall
you have  []
Enter -1 to quit
Enter Direction to move :
W
You are in Dining room
you have  ['Ring']
Enter -1 to quit
Enter Direction to move :
E
You are in Hall
you have  ['Ring']
Enter -1 to quit
Enter Direction to move :
N
You are in kitchen
you have  ['Ring']
```

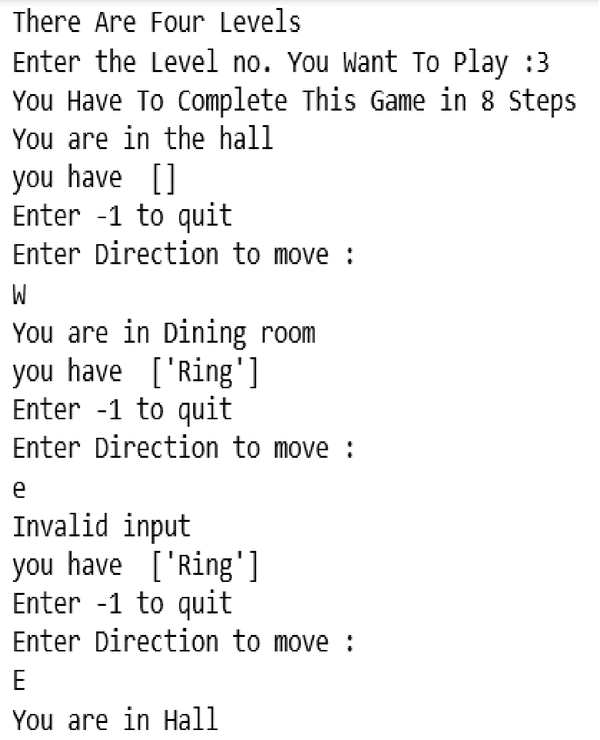


```
Enter -1 to quit
Enter Direction to move :
E
You are in Washroom
you have  ['Ring', 'Key']
Enter -1 to quit
Enter Direction to move :
W
You are in Kitchen
you have  ['Ring', 'Key']
Enter -1 to quit
Enter Direction to move :
S
You are in Hall
you have  ['Ring', 'Key']
Enter -1 to quit
Enter Direction to move :
S
```

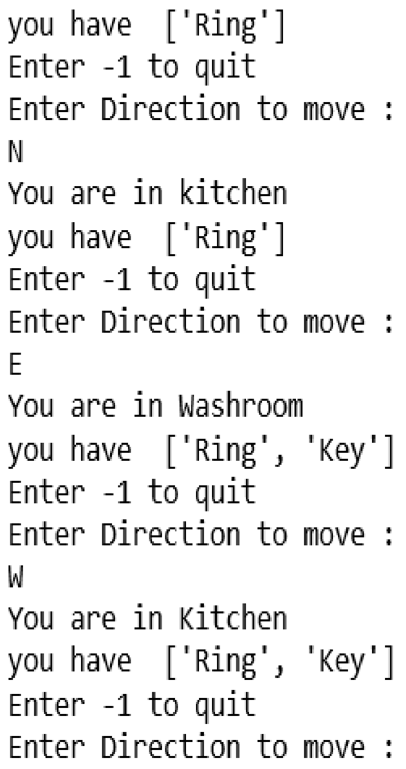


```
You are in Store
you have  ['Ring', 'Key']
Enter -1 to quit
Enter Direction to move :
E
You are in Garden
You Won Level 2 Game
CONGRATS!!!
```

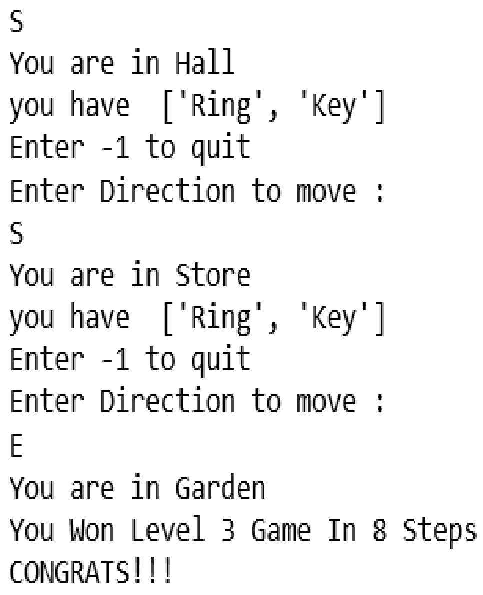
Output of Level 3



```
There Are Four Levels
Enter the Level no. You Want To Play :3
You Have To Complete This Game in 8 Steps
You are in the hall
you have  []
Enter -1 to quit
Enter Direction to move :
W
You are in Dining room
you have  ['Ring']
Enter -1 to quit
Enter Direction to move :
e
Invalid input
you have  ['Ring']
Enter -1 to quit
Enter Direction to move :
E
You are in Hall
```

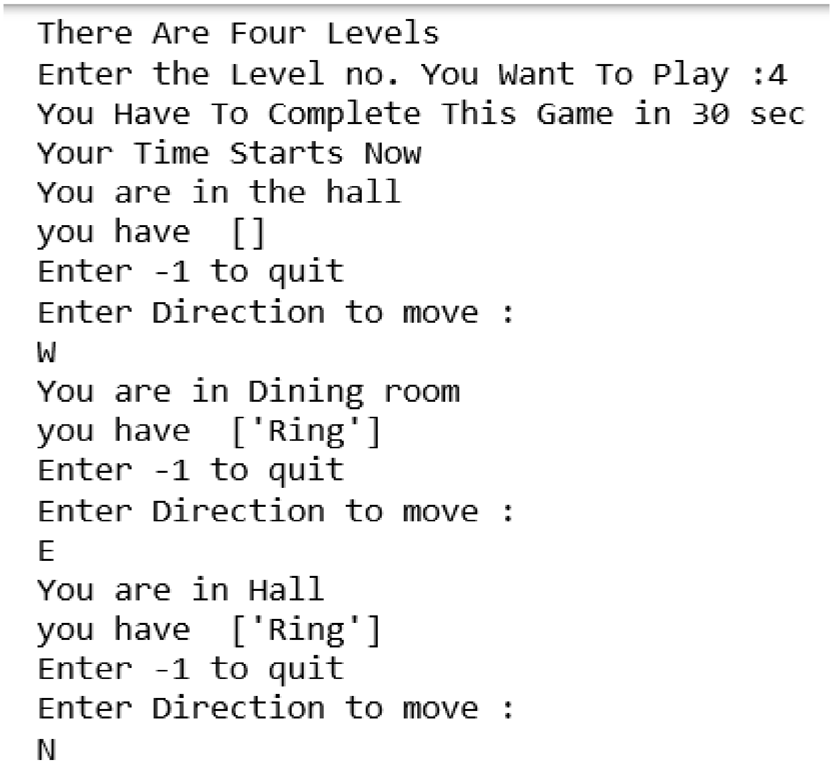


```
you have  ['Ring']
Enter -1 to quit
Enter Direction to move :
N
You are in kitchen
you have  ['Ring']
Enter -1 to quit
Enter Direction to move :
E
You are in Washroom
you have  ['Ring', 'Key']
Enter -1 to quit
Enter Direction to move :
W
You are in Kitchen
you have  ['Ring', 'Key']
Enter -1 to quit
Enter Direction to move :
```

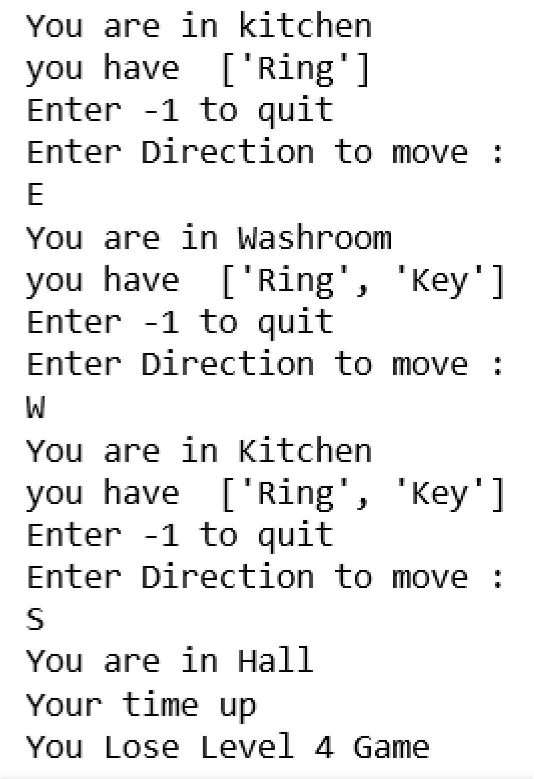


```
S
You are in Hall
you have  ['Ring', 'Key']
Enter -1 to quit
Enter Direction to move :
S
You are in Store
you have  ['Ring', 'Key']
Enter -1 to quit
Enter Direction to move :
E
You are in Garden
You Won Level 3 Game In 8 Steps
CONGRATS!!!
```

Output of Level 4



```
There Are Four Levels
Enter the Level no. You Want To Play :4
You Have To Complete This Game in 30 sec
Your Time Starts Now
You are in the hall
you have  []
Enter -1 to quit
Enter Direction to move :
W
You are in Dining room
you have  ['Ring']
Enter -1 to quit
Enter Direction to move :
E
You are in Hall
you have  ['Ring']
Enter -1 to quit
Enter Direction to move :
N
```



```
You are in kitchen
you have  ['Ring']
Enter -1 to quit
Enter Direction to move :
E
You are in Washroom
you have  ['Ring', 'Key']
Enter -1 to quit
Enter Direction to move :
W
You are in Kitchen
you have  ['Ring', 'Key']
Enter -1 to quit
Enter Direction to move :
S
You are in Hall
Your time up
You Lose Level 4 Game
```

CHAPTER 4

CONCLUSION

In this section, I summarize the experience gained by me during the development of this project. Writing a code for a game project is completely a new experience to me. It helps me to grow my Creative thinking and imagination capability.

The future plan to extend this project is to add more number of levels, add graphical representation to it, introduce new game features to it, and to make it more intresting by adding new environments (instead of house) and scenes.

At last, I want to say that I learned a lot through this project and it sharpen the concepts of functions as I extensively used functions in it.

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