Final Report
(ALL IN ONE COVID-19)

Course Code: CS110 **Course Title:** Computer Programming

Semester: B. Tech 2^{nd} Sem **Section:** S2

Academic Year: 2019-20 **Course Instructor:** Marwa Mohiddin

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1 Abstract

In these times of crisis, where rumours are spread faster than facts and information is highly exaggerated. We have developed a program: ALL IN ONE COVID-19 to provide the users with all reliable and necessary factual information about the current pandemic situation. It is a multi-functional code. Once complete, the users will be able to get information about current statistics of cases in the country and worldwide, self-assess themselves and their families. They can find all latest updates about the pandemic from all over the world.

Also, as a part of recreation during lock-down, random facts, lock-down games (Quiz/Riddles, Hangman and tic-tac-toe), and lock-down activities are also included in this program. These activities will help the users to relieve their stress and help them get refreshed.

There will be multiple user login/logout facilities with out loss of any data per session. Moreover, all the data will be stored permanently in separate files for later access too.

The code will be written by including all most all the topics covered in the CS110 course taken by the team. If any additional topics not included in the course are employed in the preparation of source code, then they will be included in the references further into the project.

Key Features:

1. Sign-in/ Sign-up for each session
2. Present cases in the country and worldwide,updated manually every 24 hours.
3. Self-Assessment.
4. Safety Measures.
5. Updates from government on Lock-down restrictions.
6. Latest international news updates about COVID-19 vaccine.
7. Mini games to keep you entertained.
8. Lock-down activities.
9. Ratings and Review.

2 Introduction

ALL IN ONE COVID-19 plans to provide a single avenue to cater to all the needs and issues of the public during these tough times. It contains a self-assessment tool, guidelines and important helplines to ensure well being of the users.

It will be built using C-programming and continue to be updated over time. This platform will ensure a seamless experience for the user while complying with citizen friendly privacy and security norms.

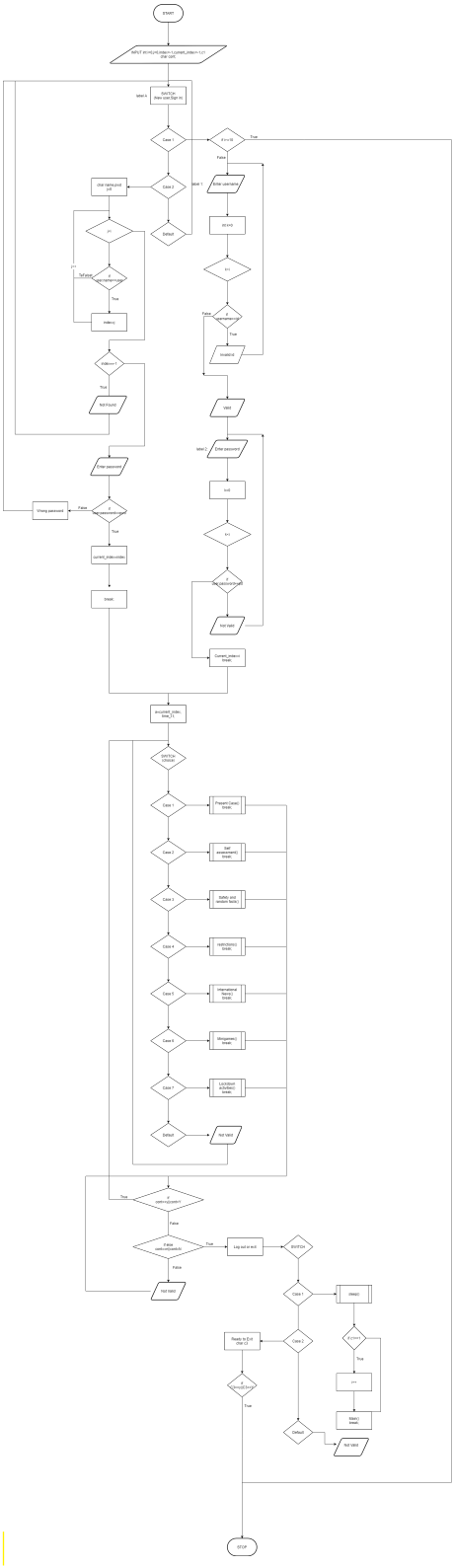
All the key features mentioned in the abstract are implemented in the program.

The idea for different functionalities of the program were by a brainstorming session. Later an outline was prepared on functions to be coded. The workload was then divided among the team. The sub-codes were then developed individually, but tested by the team. Once all sub codes were completed, they were Integrated to the main() function and continuous improvements to the code were made by several tests and error debugging. The team also individually prepared flowcharts for the code written by them and then put in to a single document later.

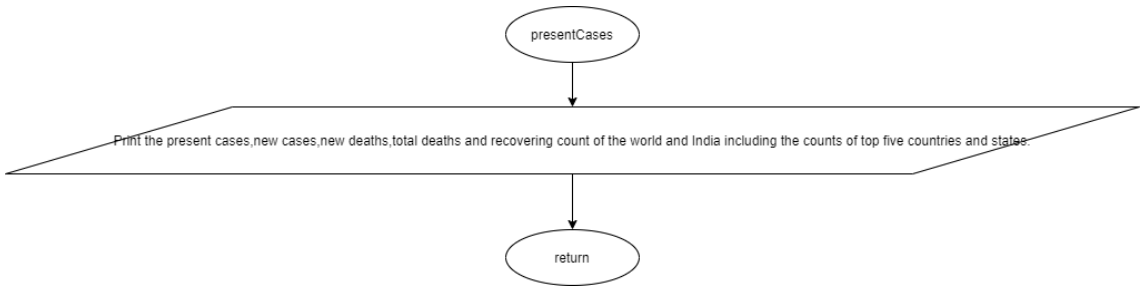
The goal was to realise solution to the problem as well as in doing so to include all the concepts covered in the course CS110 (Introduction to C Programming language, C fundamentals, C I/O functions, operators and expressions in C, Decision making, branching and looping, array, strings, functions, structures and unions, pointers and file management.)

Doing this project has helped us understand the course better as we got a chance to implement all our learnings. This also helped us learn several new concepts.

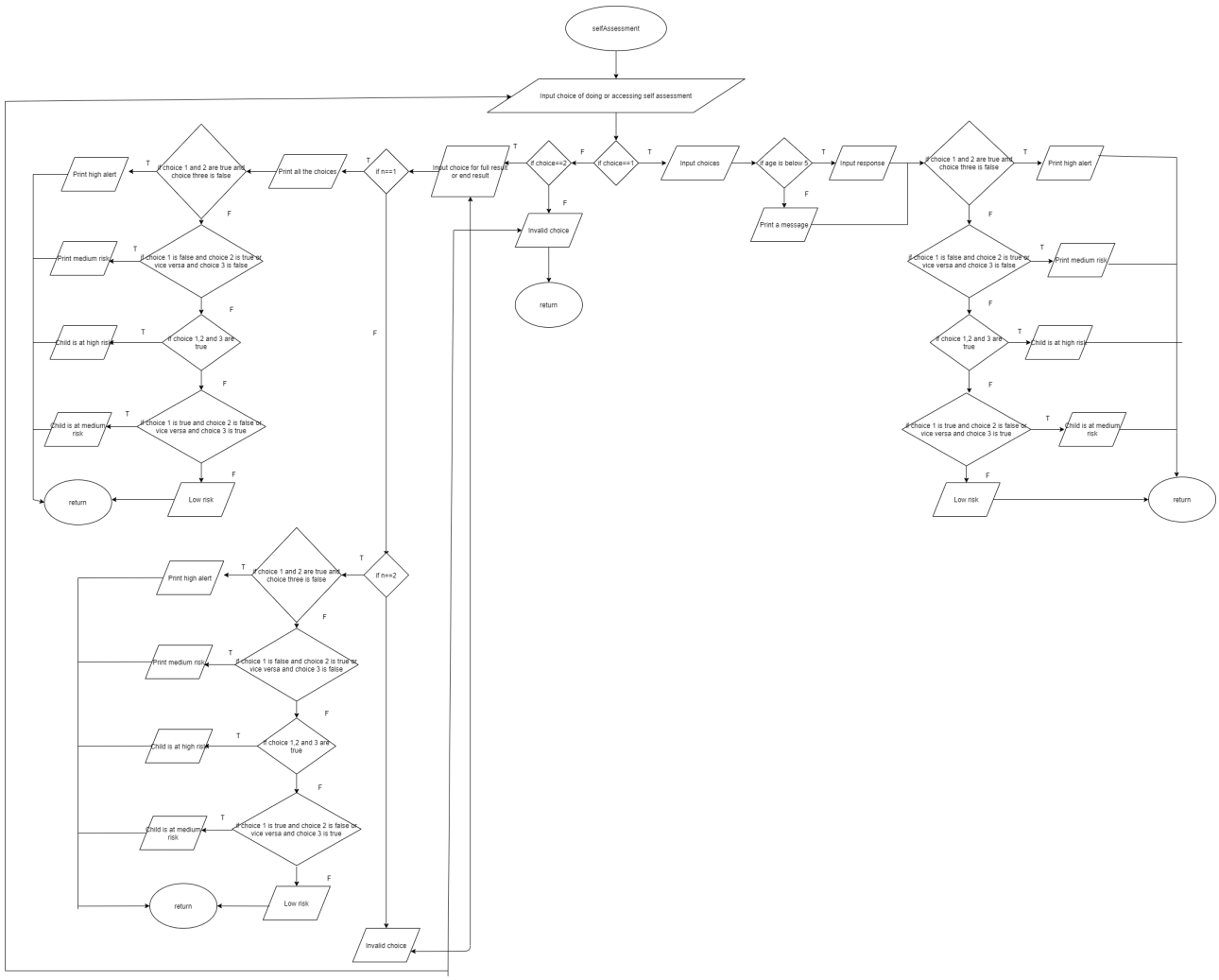
3 Flowcharts



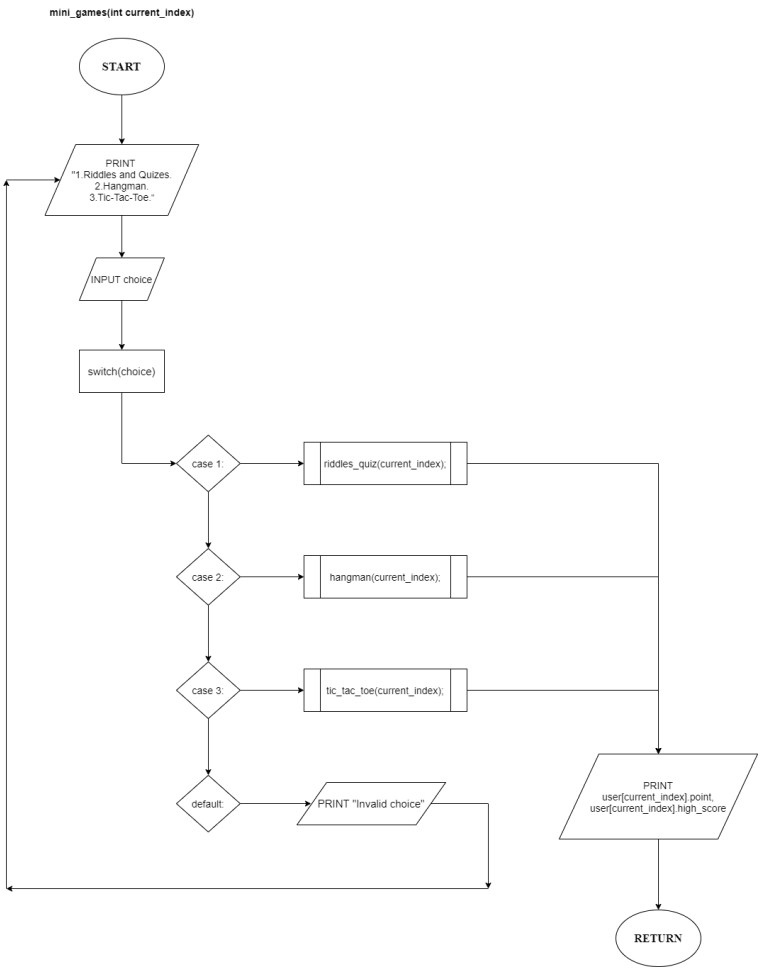
Flowchart of Main Function



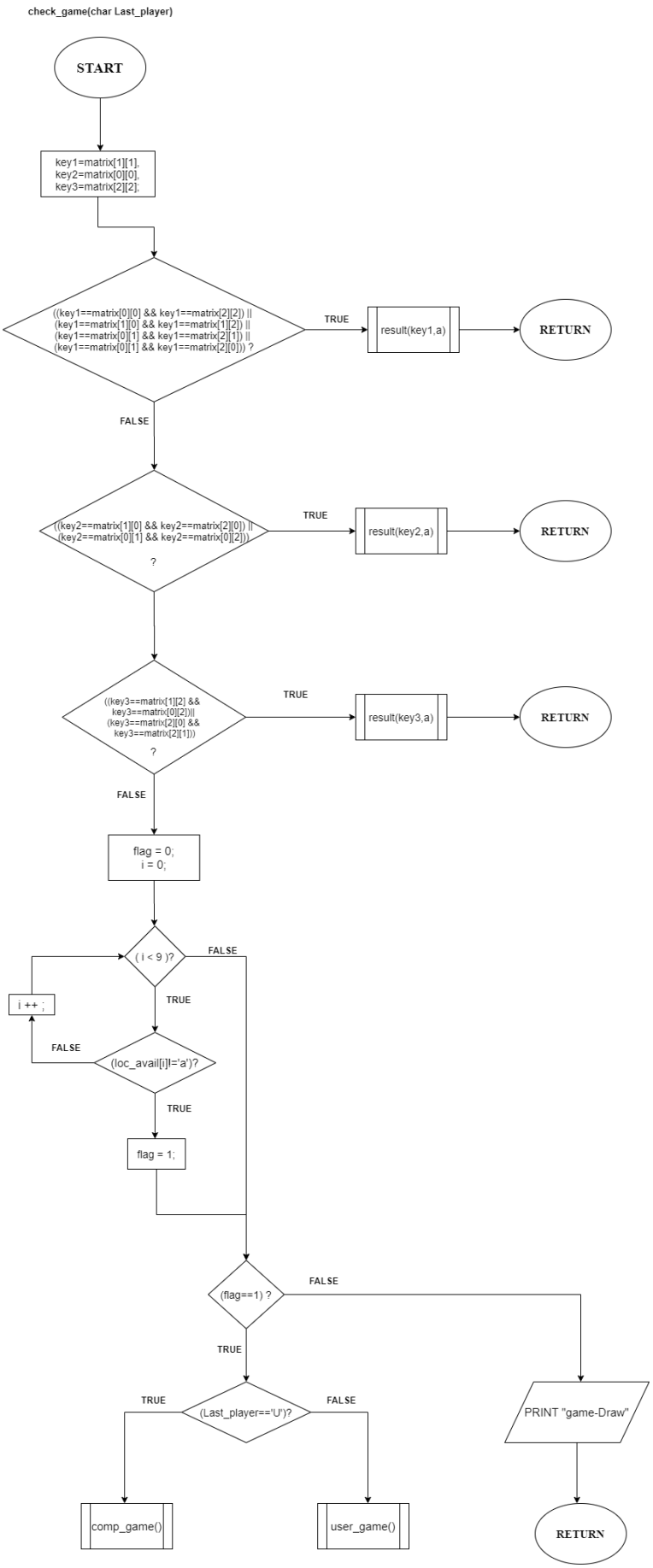
Flowchart of Present Cases



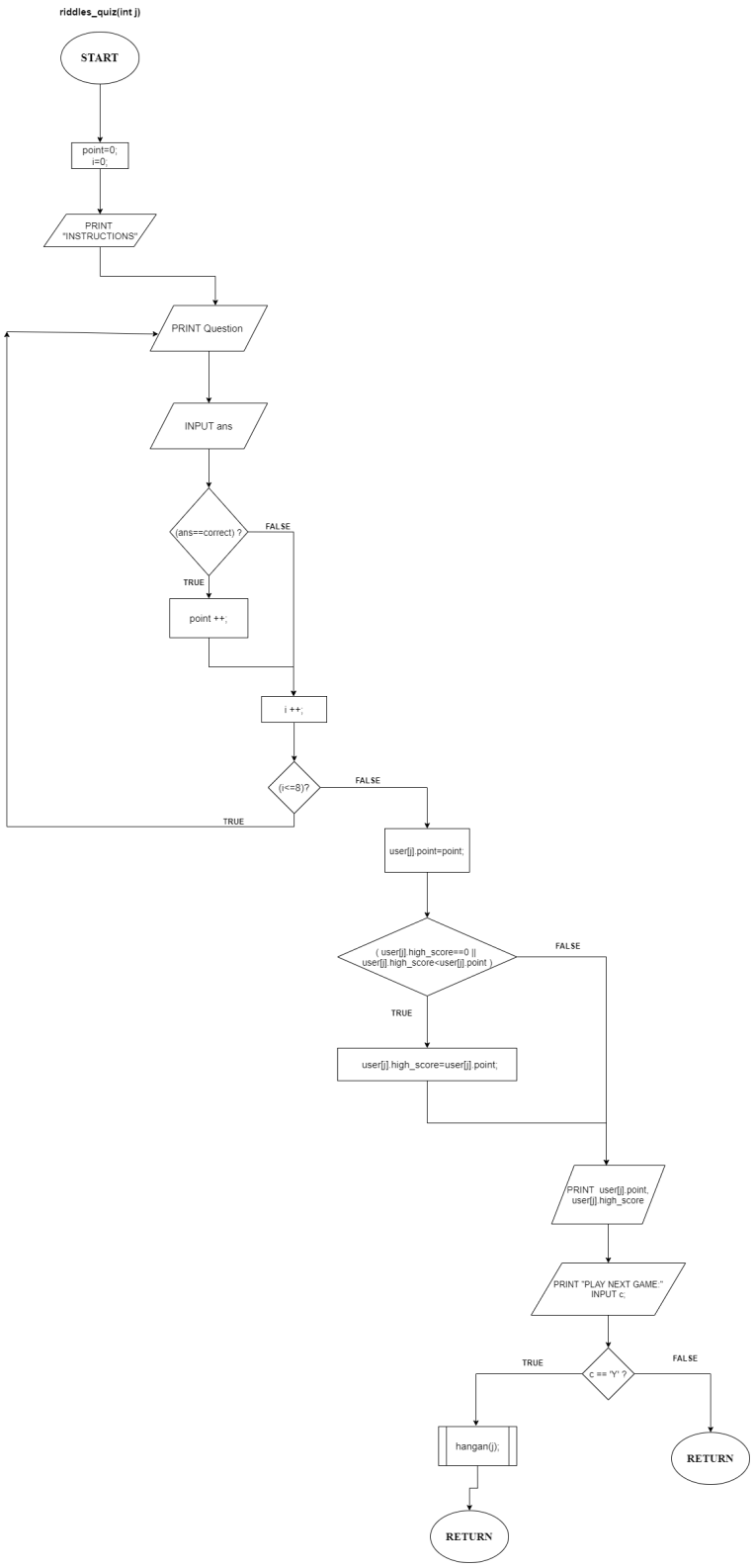
Flowchart of Self Assessment



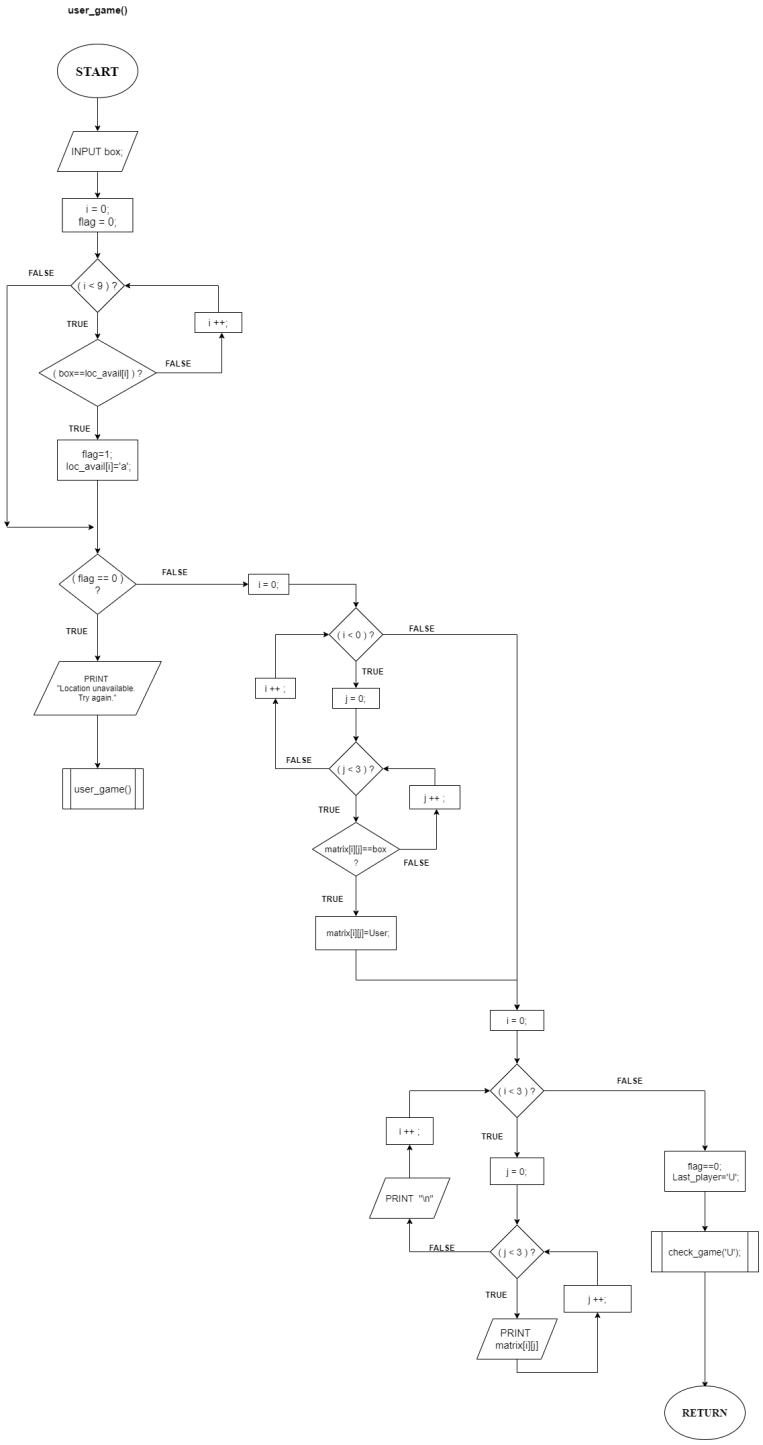
Flowchart of Mini Games



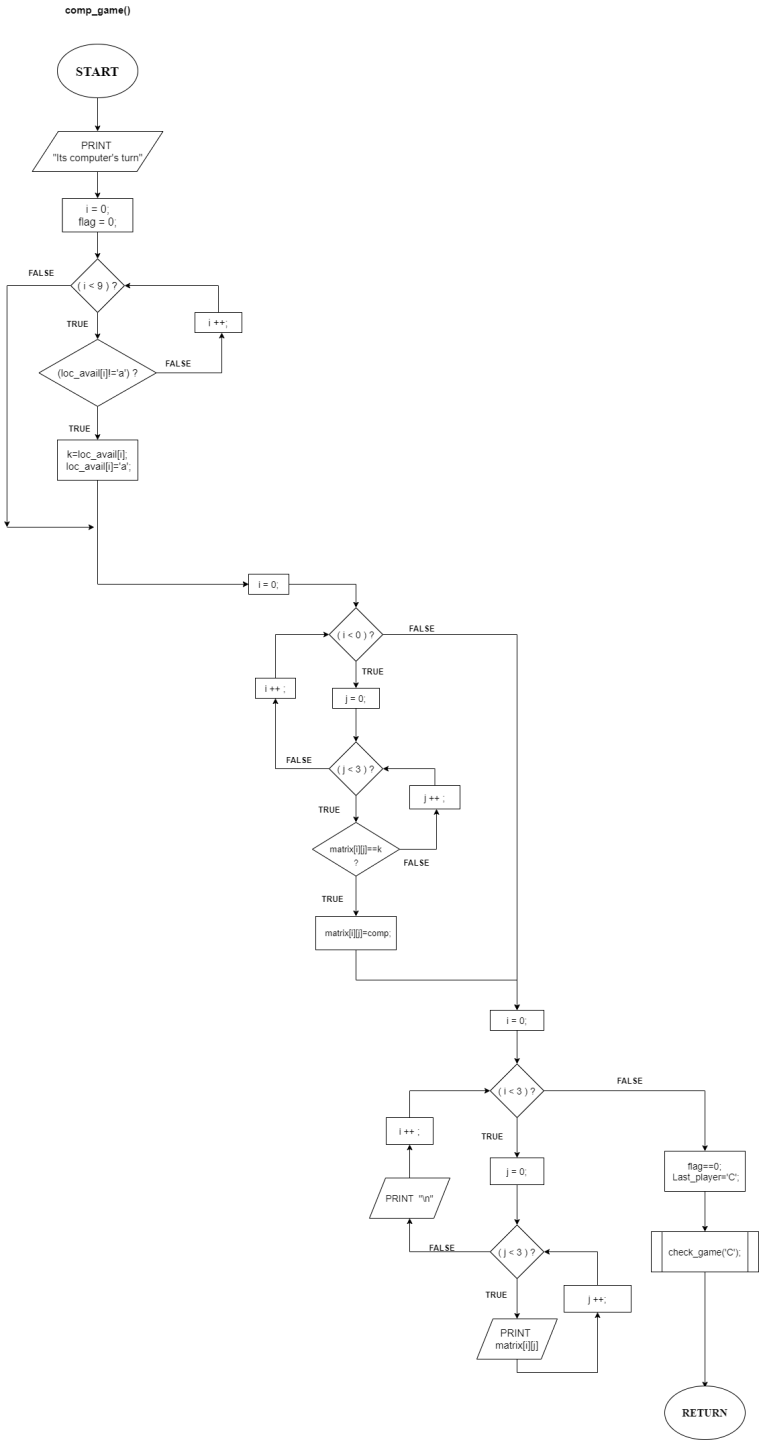
Flowchart of Check Games



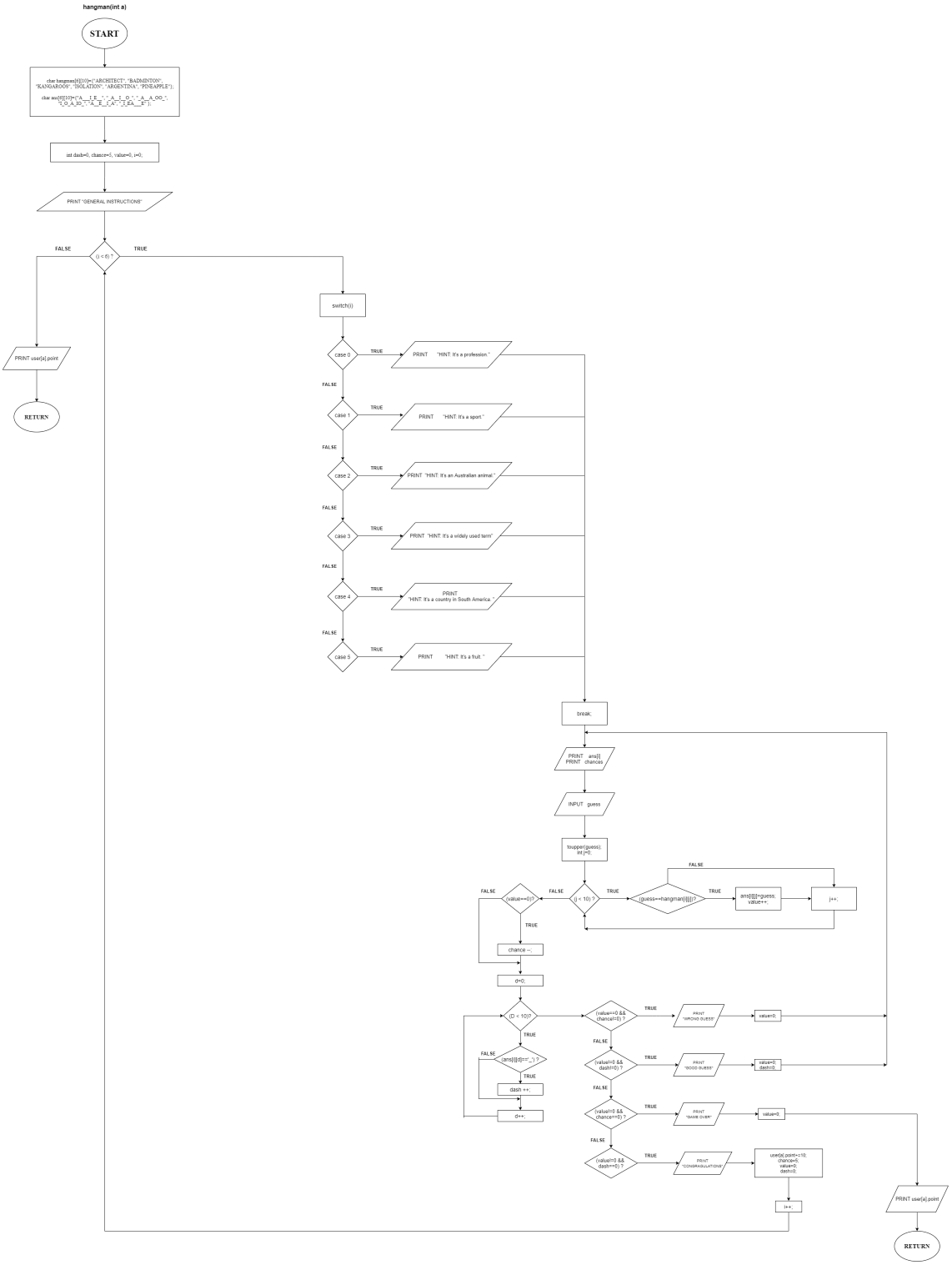
Flowchart of Riddles Quiz



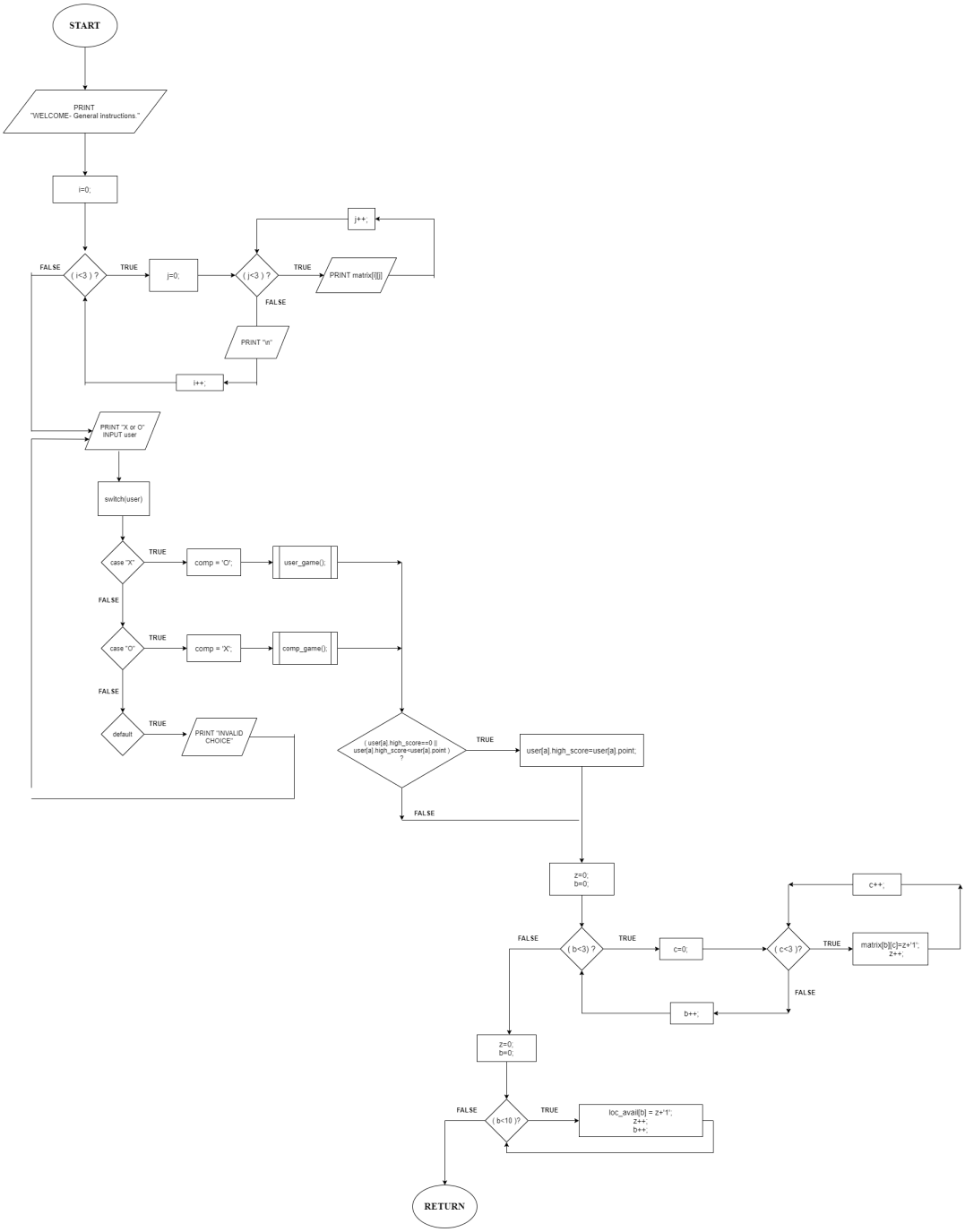
Flowchart of User Game



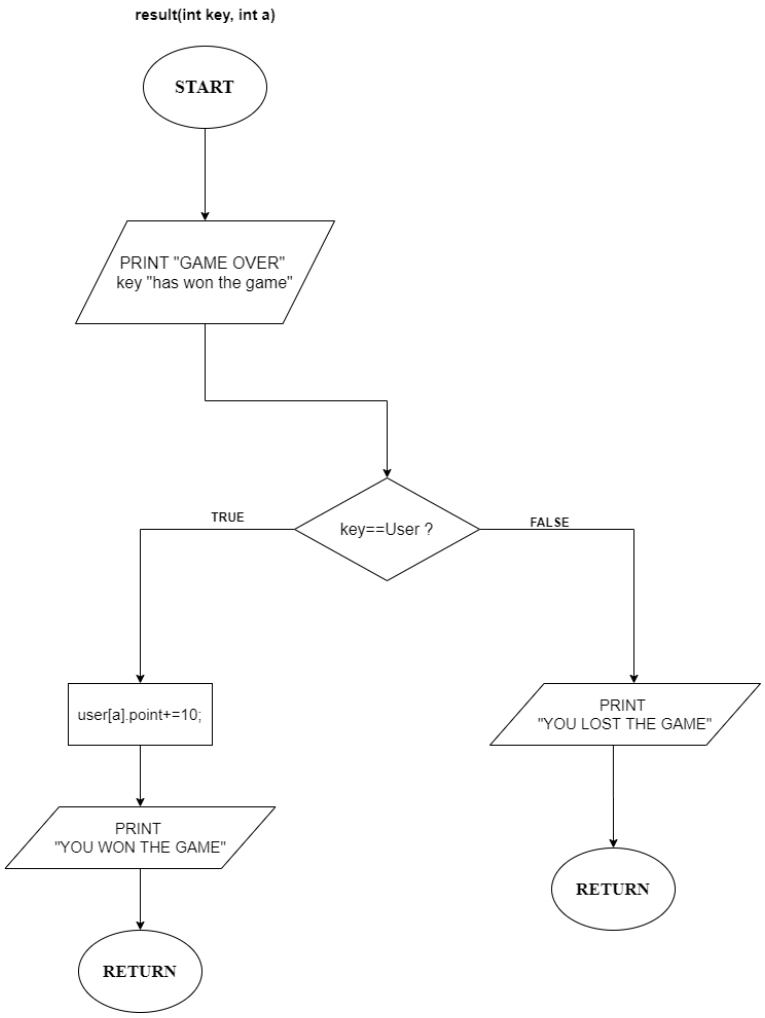
Flowchart of Computer Game



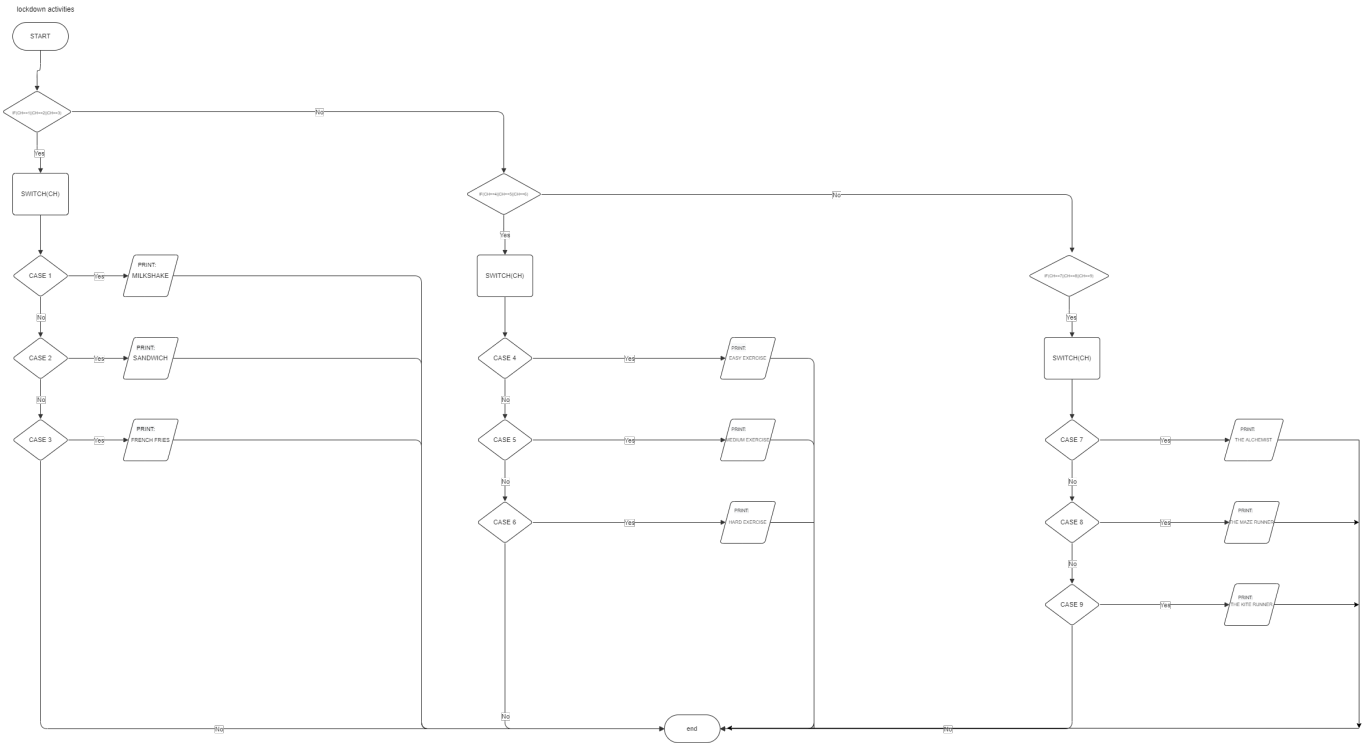
Flowchart of Hangman Game



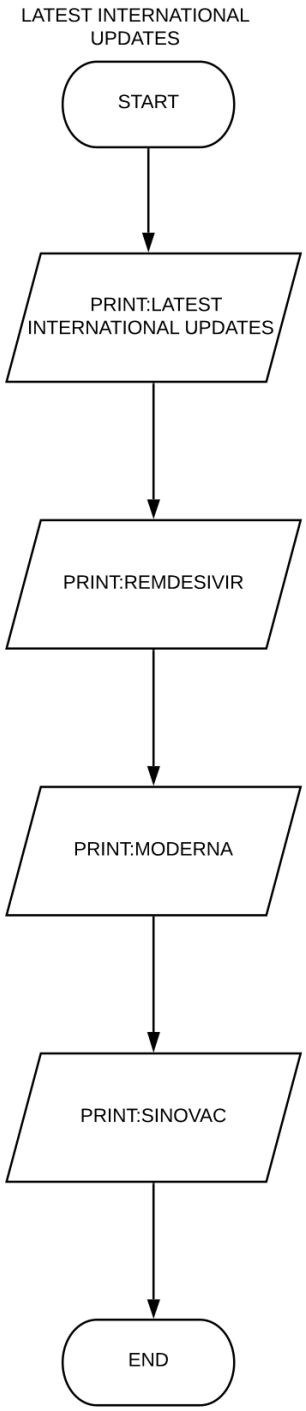
Flowchart of Tic Tac Toe



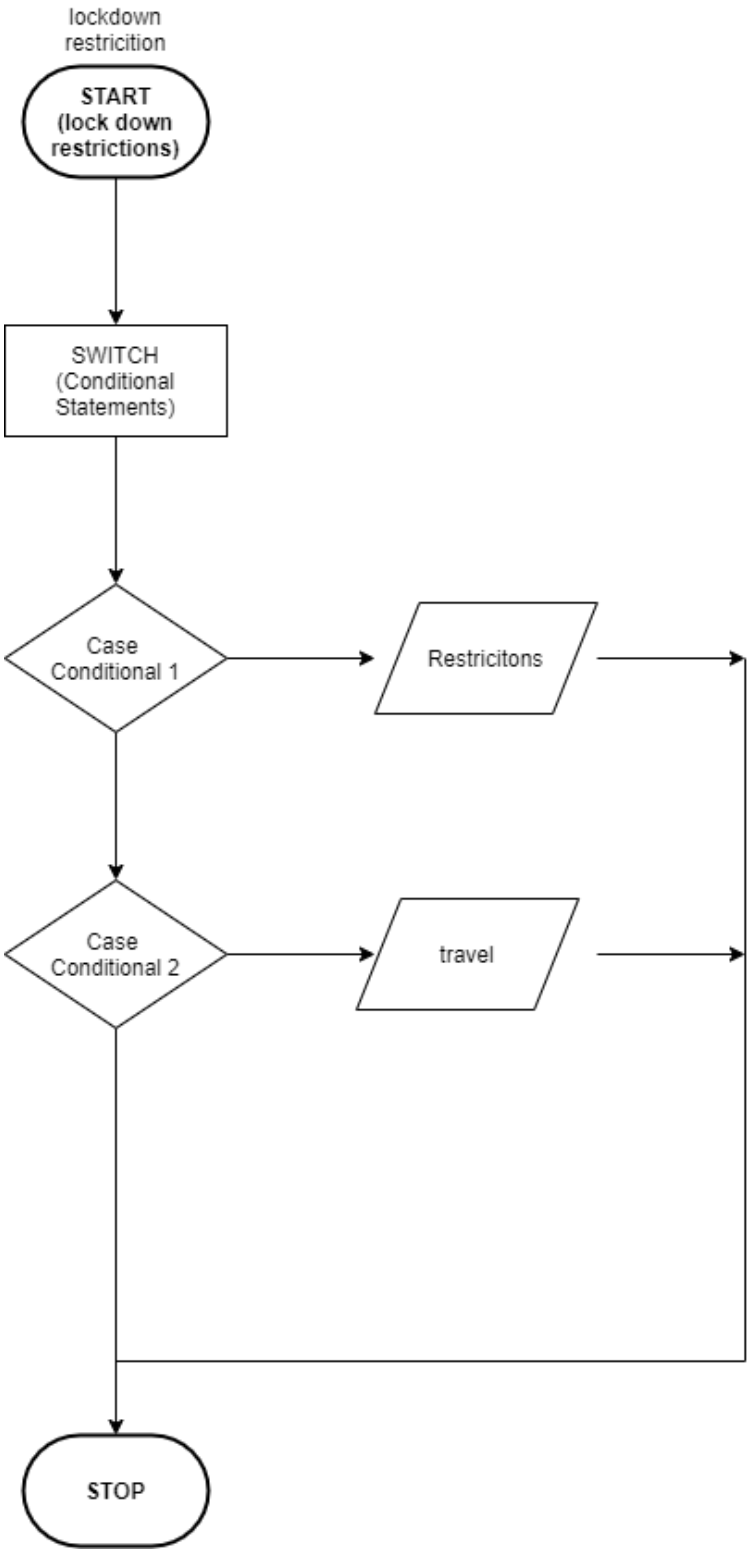
Flowchart of Result



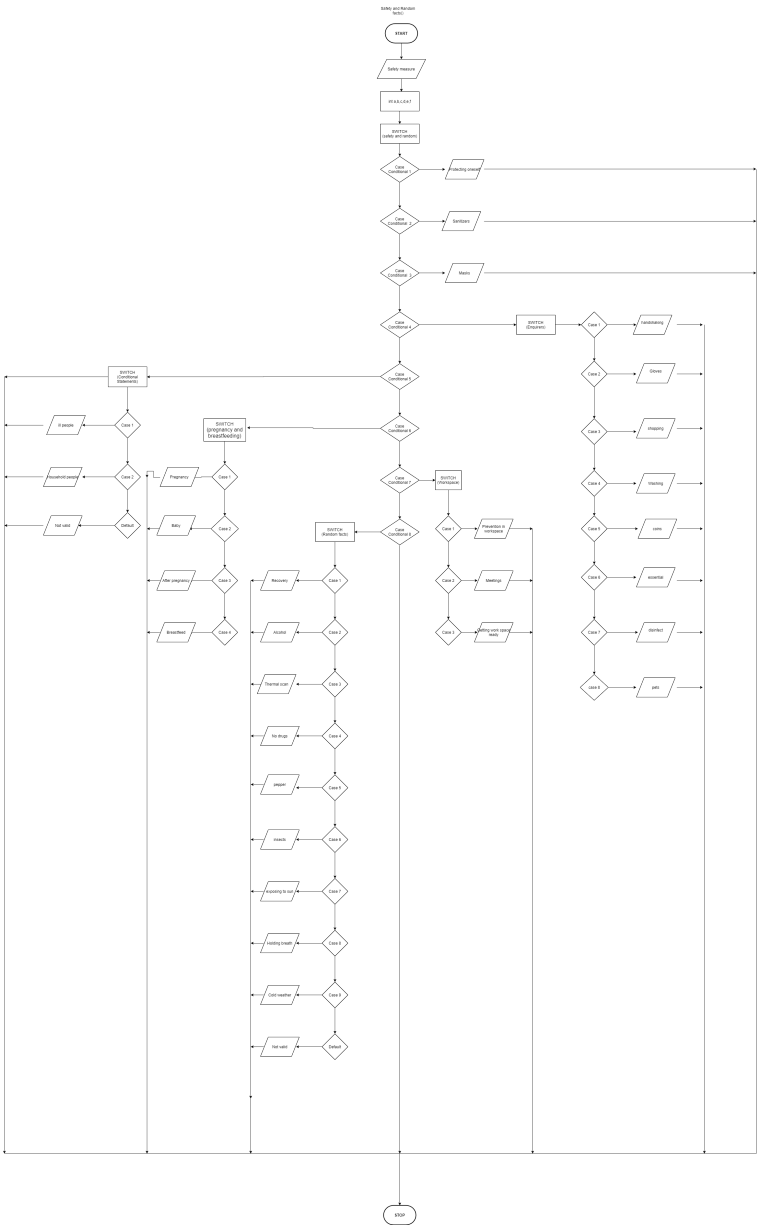
Flowchart of Lockdown Activities



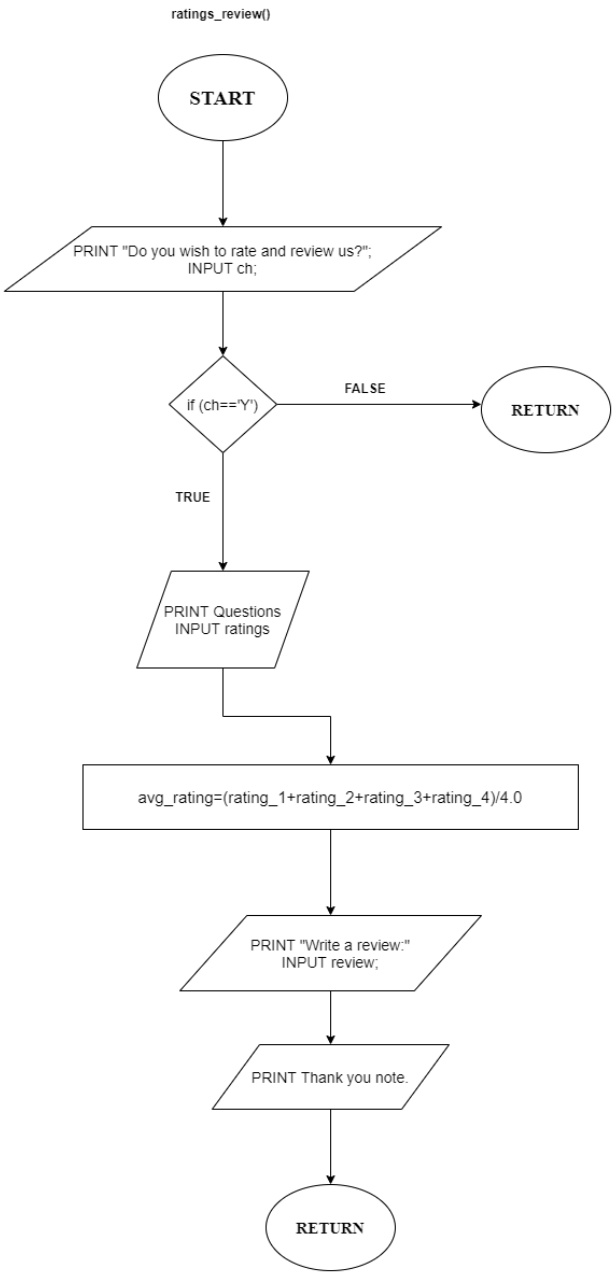
Flowchart of Latest International Updates



Flowchart of Lockdown Restrictions



Flowchart of Safety and Random



Flowchart of Ratings and Review

4 Source Code

ALL IN ONE COVID-19.c

```
/*

ALL IN COVID-19

Course Code: CS110
Course Title: Computer Programming
Semester: B. Tech 2nd Sem
Section: S2
Academic Year: 2019-20
Course Instructor: Marwa Mohiddin

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*/



//begin code for ALL IN ONE COVID-19

//inclusion of standard libraries.
#include <stdio.h>
#include <time.h>
```

```
#include <stdlib.h>
#include <string.h>
#include <ctype.h>
#include <windows.h>
#include <conio.h>

//structure for storing user login details and mini_games
//points and high-score, ratings and reviews..

struct database
{
  char user_name[10];
  char password[5];
  int point;
  int high_score;
  int rating[4];
  float avg_rate;
  char review[200];
}user[10];  //structure variable creation.

//Structure for storing the self-assessment results.
struct result
    {
        int ch1,ch2,ch3,ch4;
        char username[10];
    }patient[10]; //structure variable creation.



//user defined functions to perform specific features
//mentioned in the abstract.

void mini_games(int *a);
void riddles_quiz(int **a);
```

```
void hangman(int a);
void tic_tac_toe(int a);
void user_game();
void comp_game();
void check_game(char x);
void result(int x, int a);
void lockdownActivities();
void selfAssessment(int c,int b);
void safetyandrandom();
void presentCases();
void internationalNews();
void lockdownRestrictions();
void ratings_review(int index, struct database *users);

//global variables for mini_games.
char matrix[3][3]={'1','2','3','4','5','6','7','8','9'};
char  User, comp, box;
char garbage;
int flag=0,a;
char loc_avail[9]={'1','2','3','4','5','6','7','8','9'};

FILE *fptr[10];
//creationg an array of file pointers to store user data permamently.



//main() function.
void main()
{

    //creating/opening files for secondary storage of data.
    for(int i=0; i<10; i++)
    {
    char w[50]; //string to store text file name.
```

```
  sprintf(w,"%d",i+1);
  char s[50]="_User_details.txt";
  strcat(w,s);
  //name each file of the format: i+1_User_details.txt
  //Ex:1_User_details.txt
  fptr[i]=fopen(w,"a+");
  //open file named i+1_User_details.txt in read and append mode.
  //fptr[i] points to the file opened.
  }


static int i=0;
char cont;
int c1,j=0,c2,index=-1,current_index=-1;
A:printf("\n\n\t\t\t\t**************************************
**********************************\n\n\t\t\t\t\t\t\tWELCOME
!!!\n\n\t\t\t\t*********************************************
************************\n\n\n\n\t1.New user(sign up)\n\t
2.Existing user(sign in)\n\nEnter your choice: ");
scanf("%d",&c1);
//Sign-in/Sign-up procedures.
switch(c1)
{
  case 1: if(i>=10)
          {
            //More than 10 users try to access the code.
            printf("Session overload!");
            exit(1);
          }
          //Input user_name from user.
          D:printf("\n\t\tEnter your user name(less than
          10 characters): ");
          char id[10];
```

```
scanf("  %[^\n]s",&id);
for(int k=0; k<i; k++)
if(strcmp(user[k].user_name,id)==0)
//check if the user_name is not available(already used).
{
  printf("\n\t\tSORRY!!! User name not available,
  try with another name.\n");
  goto D;
}
//user_nameis available.

strcpy(user[i].user_name,id);

//store the user_name in structure database's
//variable user[i].user_name

fprintf(fptr[i],"User Name: %s\n",id);

//save the user_name in i+_User_details.txt file.

//Input user_password from user.
E: printf("\n\t\tEnter a password(less than 5 characters): ");
char pd[5],ch;int x2=0;
//display * when password is entered for the sake of privacy.
for(x2 = 0; x2 <5; x2++)
{
    ch = getch();
    if(ch == 13)     //if ch is NULL
    break;
    pd[x2] = ch;
    ch = '*' ;
    printf("%c ", ch);
}
```

```
        pd[x2] = '\0'; //append NULL at the end

        //check for password availability.
        for(int k=0; k<i; k++)
        if(strcmp(user[k].password,pd)==0)
        //check if password is not available.
        {
          printf("\n\t\tSORRY!!! Password not available,
          try with another name.\n");
          goto E;
        }
        //password is available.
        strcpy(user[i].password,pd);
        //store the password in user[i].password
        fprintf(fptr[i],"Password: %s\n",pd);
        //save the password in i+1_User_details.txt file.
        printf("\n\n\n\n\t\t\tACCOUNT CREATION SUCCESSFUL!!!\n\n");
        current_index=i;
        break;

case 2:
        //Input user_name from user.
        printf("\n\t\tEnter your user name: ");
        char name[10],pwd[5],ch1;int x1=0;
        scanf("  %[^\n]s",&name);
        for(j=0;j<i;j++)
        //Find User_name from database Structure.
        {
          if(strcmp(name,user[j].user_name)==0)
          //if find is successful, assign j to index.
          index=j;
        }
        if(index==-1)   //user name not found in the database.
```

```
{
  printf("\n\t\tOOPS!!! User name not found in data base.");
  goto A;
}
else
{
  //user name found in the database.
  //Input password from the user.
  printf("\n\t\tEnter password: ");
  //display * when password is entered for the sake of privacy.
  for(x1 = 0;x1 <5;x1++)
  {
      ch1 = getch();
      if(ch1 == 13)      //if ch is NULL
      break;
      pwd[x1] = ch1;
      ch1 = '*' ;
      printf("%c ", ch1);
  }
   pwd[x1] = '\0';

  //check if the password matches with user_name's
  //password already stored in database.
  if(strcmp(pwd,user[index].password)==0)
  {
    //match successful.
    printf("\n\n\n\t\t\tLOGIN SUCCESSFUL!!! WELCOME BACK!!!");
    current_index=index;
  }
  else
 {
   //match failure.
  printf("\n\t\tIncorrect password!\n");
```

```
            goto A;
           }
          }
          break;

  default: printf("\nInvalid choice.\n");
           goto A;
}

  a=current_index;

  printf("\n\n\n\t\t\t\t\t\tWELCOME TO ALL IN ONE COVID-19!!!\n\n ");

  //read and display time from system.
  time_t t;
  time(&t);
  printf("\nYou have logged in at %s", ctime(&t));

  fprintf(fptr[current_index],"\nYou have logged in at %s\n", ctime(&t));
  //save in file i+1_User_details.txt the login time.
  fprintf(fptr[current_index],"ACTIVITY:\n");
  //save history in file i+1_User_details.txt

  //display introduction.
  printf("\n\n\t\t This app is aimed at providing the users with all
  necessary information regarding the current pandemic\n\n");
  printf("\nWe currently have the following options for you.");
 L:printf("\n1. Present cases in the country and worldwide.
  \n2. Self-Assessment\n3. Safety Measures and random
  facts\n4. Updates from government on Lockdown
  restrictions.\n5. Latest international news updates
  about COVID-19.\n6. Mini Games when you need a break.
  \n7. Lockdown activities.");
```

```
printf("\n\nKindly select one of the following: ");
int choice;
scanf("%d",&choice);

switch(choice)
{
    case 1:
    {
        presentCases(); //function call
        fprintf(fptr[current_index],"The user accessed Present
        cases.\n");
        //save data in file.
        break;
    }
    case 2:
    {
        fprintf(fptr[current_index],"The user accessed Self
        Assessment.\n");
        //save data in file.
        selfAssessment(i,a);  //function call
        break;
    }
    case 3:
    {
        safetyandrandom();  //function call
        fprintf(fptr[current_index],"The user accessed Safety
        measures and random facts.\n");
        //save data in file.
        break;
    }
    case 4:
    {
        lockdownRestrictions(); //function call
```

```
        fprintf(fptr[current_index],"The user accessed Government
        imposed lock-down restrictions.\n");
        //save data in file.
        break;
    }
    case 5:
    {
        internationalNews();  //function call
        fprintf(fptr[current_index],"The user accessed international
        news about COVID-19.\n");
        //save data in file.
        break;
    }
    case 6:
    {

        user[current_index].point=0; //initialize users points to zero.
        mini_games(&current_index);  //function call.
        fprintf(fptr[current_index],"The user accessed Mini games:\n");
        //save data in file.
        fprintf(fptr[current_index],"\t\t\t\tHighscore: %d\n",
        user[current_index].high_score);
        //save the high score into i+1_User_details.txt file.
        break;
    }
    case 7:
    {
        lockdownActivities(); //function call
        fprintf(fptr[current_index],"The user accessed Lock-down
        activities.\n");
        //save data in file.
        break;
    }
```

```
    default:
    {
        printf("Please enter a valid choice:\n");
        goto L;
    }

}

//Ask for user input on his/her choice of continuing our services.
K: printf("\n\n\nDo you want to continue with our service?
Press (Y/N): ");
scanf(" %c",&cont);
if(cont=='y' || cont=='Y')
{
  //the user wants to continue our services.
    goto L;
}
else if(cont=='n' || cont=='N')
{
    //the user does not want to continue our facilities.
    //Log-out/Exit facility
    B:printf("\n1.Log out(Your data will be saved)\n
    2.Exit(Your data will be lost)\nEnter your choice: ");
    scanf("%d", &c2);
    switch(c2)
    {
    case 1:

        //function call to receive user opinion.
        ratings_review(current_index,&user[current_index]);

        //the user wants to log out
        printf("\nLogging out...");
```

```
        sleep(1);

        time_t t2;
        time(&t2);
        printf("\nSuccessfully Logged off.\n");

        fprintf(fptr[current_index],"\nYou have logged out at %s\n
        ------------------------------------------------------
        ----------\n", ctime(&t2));
        //save the logout time to i+1_User_details.txt file.
        fclose(fptr[i]);  //close file i+1_user_details.txt

        if(c1==1)
        i++;

        sleep(1);

        main();      //recursive functions.

        break;

    case 2:

        //the user wants to exit. Check for confirmation.
        printf("If you exit, all your data will be lost.
        \nARE YOU SURE YOU WANT TO EXIT! (Y/N): ");
        char c3;
        scanf(" %c",&c3);
        if(c3=='Y' || c3=='y')
        {
            //function call to get user details.
            ratings_review(current_index,&user[current_index]);
```

```
            //exit user.
            printf("\nThank you!!! It was a pleasure serving you!!\n");

            time_t t1;
            time(&t1);
            printf("You exited at %s",ctime(&t1));

            fprintf(fptr[current_index],"\nYou have logged out at %s\n
            ------------------------------------------------------
            ----------\n", ctime(&t1));
            //save logout time to i+1_User_details.txt file.
            fclose(fptr[i]);  //close file.
          exit(0);  //EXIT
        }

        else
        //the user doesnt want to exit.
        goto B;

        break;

    default: printf("\nInvalid choice.\n");
            goto B;
            break;

     }

}

else
{
    printf("\nPlease enter a valid choice.\n");
    goto K;
```

```
    }
}

//end of main()


//User-defined functions begin.


//function definition for mini_games
void mini_games(int *current_index)
{
    //user can select a game among available choices.
  A: printf("\n\n\t\t\tWELCOME!!!\n\nYou have choosen to play mini-games.
  \nThe following games are available for you to play:
  \n1.Riddles and Quizes.\n2.Hangman.\n3.Tic-Tac-Toe.
  \nEnter your choice(For a high score, we suggest
  you pick 1, and play all the games.): ");
  int choice,ind=*current_index;
  char ch;
  scanf("%d",&choice);
  switch(choice)
  {
    case 1: riddles_quiz(&current_index); //function call.
            break;

    case 2: hangman(ind);  //function call.
            break;

    case 3: tic_tac_toe(ind);  //function call.
            printf("\nThis is the last mini-game.\n");
            //end of mini games.
            break;
```

```
    default: printf("\nINVALID CHOICE! Chose again.\n");
             goto A;
  }
  //display user score and highscore.
  printf("\nYou have completed mini-games.
  \nPoints: %d\nHigh score: %d\n\n",user[*current_index].point,
  user[*current_index].high_score);
  return;
  //end of mini_games
}

//function definition for riddles_quiz
void riddles_quiz(int **j)
{
    //function for riddles and quiz game.
  char a, ans[20];
  int point=0;
  //display of instructions.
  printf("\nWELCOME\nThe Riddles and Quizes game.\nGeneral Instructions.
  \n1.Four riddles will be displayed first, one after another.
  \n2.A correct guess will award you with 10 points.
  \n3.After the riddles, four general knowledge questions
  will be asked one after another(MCQs).
  \n4.The correct answer will give you 10 points.
  \nIMPORTANT: ALL ANSWERS MUST BE IN LOWER CASE alphabets.
  \n\nALL THE BEST!!!\n\n ");
  printf("\nRIDDLES:\n");

  //display of questions.
  printf("\nQuestion 1.\nWhat has roots as nobody sees,
  \nIs taller than trees,\nUp, up it goes,
  \nAnd yet never grows?\n\nAns:");
```

```
scanf("  %s",&ans);
if(strcmp(ans,"mountains")==0 || strcmp(ans,"mountain")==0)
//check if the ans is correct.
{
  //the answer is correct.
  printf("\nCorrect Guess! You got 10 points\n\n");
  point=point+10;    //add 10 to points
}
else
{
  //the ans is wrong. display correct ans.
  printf("Incorrect guess! The answer is : mountains\n\n");
}

for(int i=0; i<20; i++)
ans[i]='\0';  //reinitialize ans variable to 0 to avoid overwriting.

printf("\nQuestion 2.\nThis thing all things devours;
\nBirds, beasts, trees, flowers;\nGnaws iron, bites steel;
\nGrinds hard stones to meal;\nSlays king, ruins town,
\nAnd beats mountain down.\n\nAns:");
scanf("  %s",&ans);
if(strcmp(ans,"time")==0)
{
  printf("\nCorrect Guess! You got 10 points\n\n");
  point=point+10;
}
else
{ printf("Incorrect guess! The answer is : time\n\n");}

for(int i=0; i<20; i++)
ans[i]='\0';
```

```
printf("\nQuestion 3.\nA box without hinges, key, or lid,
\nYet golden treasure inside is hidden.\n\nAns:");
scanf(" %s",&ans);
if(strcmp(ans,"egg")==0 || strcmp(ans,"eggs")==0)
{
  printf("\nCorrect Guess! You got 10 points\n\n");
  point=point+10;
}
else
{ printf("Incorrect guess! The answer is : egg\n\n");}

for(int i=0; i<20; i++)
ans[i]='\0';

printf("\nQuestion 4.\nWhat has a neck,\nbut no head,
\nYet wears a cap.\n\nAns:");
scanf(" %s",&ans);
if(strcmp(ans,"bottle")==0 || strcmp(ans,"bottles")==0)
{
  printf("\nCorrect Guess! You got 10 points\n\n");
  point=point+10;
}
else
{ printf("Incorrect guess! The answer is : bottle\n\n");}

printf("\nYou have completed the riddles.
Now moving on to GK quiz: \n");

printf("\nQuestion 1.\nWho discovered penicillin?
\na.Alexander Fleming.\nb.Edward Jenner
\nc.Louis Pasteur\nd.Robert Koch\nAns:");
scanf(" %c",&a);
if(a=='a'||a=='A')
```

```
{
  printf("\nCorrect Guess! You got 10 points\n\n");
  point=point+10;
}
else
{ printf("\nIncorrect guess! The answer is : a.Alexander Fleming\n\n");}

printf("\nQuestion 2.\nThe Indian to beat the computers in
mathematical wizardry is\nA.Ramanujam\nB.Rina Panigrahi
\nC.Raja Ramanna\nD.Shakunthala Devi\nAns:");
scanf("  %c",&a);
if(a=='d'||a=='D')
{
  printf("\nCorrect Guess! You got 10 points\n\n");
  point=point+10;
}
else
{ printf("\nIncorrect guess! The answer is : D. Shakunthala Devi\n\n");}

printf("\nQuestion 3.\nThe members of Lok Sabha hold office
for a term of\nA.4 years\nB.5 years\nC.6 years\nD.3 years\nAns:");
scanf("  %c",&a);
if(a=='b'||a=='B')
{
  printf("\nCorrect Guess! You got 10 points\n\n");
  point=point+10;
}
else
{ printf("\nIncorrect guess! The answer is : B. 5 years\n\n");}

printf("\nQuestion 4.\nThe Battle of Plassey was fought
in:\nA.1757\nB.1782\nC.1748\nD.1764\nAns:");
scanf("  %c",&a);
```

```
  if(a=='a'||a=='A')
  {
    printf("\nCorrect Guess! You got 10 points\n\n");
    point=point+10;
  }
  else
  { printf("\nIncorrect guess! The answer is : A. 1757\n\n");}

  //end of riddles and quiz. update and display result.
  user[**j].point=point;
  if( user[**j].high_score==0 ||  user[**j].high_score<user[**j].point )
  user[**j].high_score=user[**j].point;
  printf("\n\nYour score: %d \nYour high score: %d\n",
  user[**j].point, user[**j].high_score);
  printf("\nWould like to try the next game? (Y/N): ");
  char ch, arg=**j;
  scanf("  %c",&ch);
  if(toupper(ch)=='Y')  //the user wants to continue the next game.
  hangman(arg);   //function call
  return;
}
//end of riddles_quiz

//function definition for hangman()
void hangman(int a)
{
    //function for hangman game.
char hangman[6][10]={"ARCHITECT", "BADMINTON", "KANGAROOS", "ISOLATION",
"ARGENTINA", "PINEAPPLE"};
char ans[6][10]={"A___I_E__", "_A__I__O_", "_A__A_OO_", "I_O_A_IO_",
"A__E__I_A", "_I_EA___E" };
char guess;
int dash=0, chance=5, value=0;
```

```
//display instructions.
printf("\t\t\t\t\t\tWELCOME TO HANGMAN \n");
printf("\t\t\t\t\t        ---- INSTRUCTIONS ---");
printf("\n\n1.Only vowels of the word will be displayed
and the consonants will be hidden. ");
printf("\n2.The user must guess the missing alphabets one by one. ");
printf("\n3.If the guessed letter is a part of the word,
then it will be displayed. ");
printf("\n4.Else the user loses a chance. The maximum number of
allowed incorrect guesses are 5.");
printf("\n5.If you lose all your turns, your game ends.
If you guess a word correctly, you get 10 points
and the game will automatically go to next level. ");
printf("\n\n\t\t\tALL THE BEST\n\n");

for(int i=0; i<6; i++){
          switch(i)
          {
              //display hints for every question.
              case 0: printf("\nQuestion %d. \nHint: Its is a
              profession.\n",i+1);
              break;
              case 1: printf("\nQuestion %d. \nHint: Its is a type of
              sport.\n",i+1);
              break;
              case 2: printf("\nQuestion %d. \nHint: Its is an
              Australian animal.\n",i+1);
              break;
              case 3: printf("\nQuestion %d. \nHint: Its is a widely
              used term.\n",i+1);
              break;
              case 4: printf("\nQuestion %d. \nHint: Its is a country
```

```
            in South America..\n",i+1);
            break;
            case 5: printf("\nQuestion %d. \nHint: Its is a
            fruit.\n",i+1);
            break;
        }
L: printf("\n%s \nYou have %d chances to guess the word.
\nGuess an alphabet: ", ans[i], chance);
    scanf(" %c", &guess);
    guess=toupper(guess);
    for(int j=0; j<10; j++){
     if(guess==hangman[i][j]){
     //check if entered letter is a correct guess.
        ans[i][j]=guess;
        value++;
    }
  }
  if(value==0)  //incorrect guess. Decrement number of chances.
     chance--;
  for(int d=0; d<10; d++){
     if(ans[i][d]=='_' )     //check number of letters yet to be guessed.
         dash++;
  }
  if(value==0 && chance!=0) //wrong guess but game is pending.
  {
    printf("\nWRONG GUESS. But you can still try again.");
    value=0;
    goto L;
  }
  if(value==0 && chance==0) //game over
  {
    char end;
    printf("\nGAME OVER - YOUR HAVE ZERO CHANCES LEFT.\nThe word is %s
```

```
        \nPress any key to continue.\n",hangman[i]);
        scanf("  %c",&end);
        value=0;
        break;
    }
    if(dash!=0 && value!=0) //correct guess but game is pending.
    {
        printf("\nGOOD GUESS.");
        value=0;
        dash=0;
        goto L;
    }
    if(dash==0 && value!=0) //Entire word guessed correctly.
    {
        printf("\n%s \nCONGRATULATIONS. \nYou have successfully guessed
        the word.\n", ans[i]);
        char end;
        printf(" \nPress any key to continue.\n");
        scanf("  %c",&end);
        user[a].point=user[a].point+10; //add 10 points.
        //re-initialize variables.
        chance=5;
        value=0;
        dash=0;
    }
}
//update highscore.
if( user[a].high_score==0 ||  user[a].high_score<user[a].point )
user[a].high_score=user[a].point;
//display result.
printf("\n\nYour score: %d \nYour high score: %d\n",
user[a].point, user[a].high_score);
printf("\nWould like to try the next game? (Y/N): ");
```

```
char ch;
scanf(" %c",&ch);
if(toupper(ch)=='Y')  //the user wants to continue on to the next game.
tic_tac_toe(a); //function call.
return;
}
//end of hangman()

//function definition for tic_tac_toe().
void tic_tac_toe(int a)
{
    //Tic-tac toe game.
    //display instructions.
    printf("\n\n\t\t\t\tWELCOME TO TIC-TAC-TOE\n\n
    The instructions for this game are as follows:
    \n1.The user must choose either 'X' or 'O'.
    \n2.The game always starts with 'X'.
    \n3.The boxes for the game are numbered as follows:\n");
    printf("\n\n");

    for(int i=0;i<3;i++)
    {
      for(int j=0;j<3;j++)
      {
        printf("\t%c\t|",matrix[i][j]);
      }
      printf("\n");
      if(i==2)
          continue;
      printf("    ----------------------------------------\n");
    }

    printf("\nThe user must enter the box number to fill in the that box.
```

```
  \n\nALL THE BEST!!!!\nPress any key to continue: ");
  scanf(" %c",&garbage);

  A: printf("What is your choice 'X' or 'O'? : ");
  //ask user choice.
     scanf(" %c",&User);

  User=toupper(User);
  switch(User)
  {
    case 'X': comp='O';
              printf("\nAs you have chosen X, you must begin the game.");
              user_game(); //function call
              break;
    case 'O': comp='X';
              printf("\nAs you have chosen O, computer will begin.");
              comp_game();  //function call
              break;
    default: printf("INVALID CHOICE ENTERED.");
             goto A;
  }
  //update and display high score.
  if( user[a].high_score==0 ||  user[a].high_score<user[a].point )
  user[a].high_score=user[a].point;
printf("\nYour current points: %d\n", user[a].point);
printf("\nYour high score: %d\n", user[a].high_score);

//re-initialize matrices for next game.
int z=0;
for(int b=0; b<3; b++)
  for(int c=0; c<3; c++)
{
    matrix[b][c]=z+'1';
```

```
        z++;
    }
    z=0;
      for(int v=0;v<10;v++)
      {
          loc_avail[v] = z+'1';
          z++;
      }
    return;
    }
//end of tic_tac_toe

//function definition for check_game()
    void check_game(char Last_player)
      {
        //check if game is won.
        {
          //check all possible combinations of winning the game.
              char key1=matrix[1][1], key2=matrix[0][0], key3=matrix[2][2];
              if((key1==matrix[0][0] && key1==matrix[2][2]) ||
              (key1==matrix[1][0] && key1==matrix[1][2]) ||
              (key1==matrix[0][1] && key1==matrix[2][1]) ||
              (key1==matrix[0][2] && key1==matrix[2][0]))
              {result(key1,a); return;}
              if((key2==matrix[1][0] && key2==matrix[2][0])
              ||(key2==matrix[0][1] && key2==matrix[0][2]))
              {result(key2,a); return;}
              if((key3==matrix[1][2] && key3==matrix[0][2])
              ||(key3==matrix[2][0] && key3==matrix[2][1]))
              {result(key3,a); return;}

        }
        //check if game is drawn or ongoing.
```

```
        int flag=0;
        for(int i=0; i<9;i++)
        {
          if(loc_avail[i]!='a')
          {  flag=1;
             break;
          }
        }
        if(flag==1)
        {
          if(Last_player=='U')
          comp_game();  //function call
          else
          user_game();  //function call.
        }
        else
        //game-draw
        {printf("\nGAME OVER \nThe game has been drawn.\n"); return;}
    }
//end of check_game()


//function definition for user_game
    void user_game()
     {
         //fill in for the user.
        flag=0;
        printf("\nIts your turn.\nEnter the box number to fill[1-9]: ");
        scanf("  %c",&box);
        for(int i=0; i<9; i++)
        { //check if location is available.
          if(box==loc_avail[i])
          {
```

```
      flag=1;
      loc_avail[i]='a';
      break;
    }
  }
  if(flag==0)
  {
    //location is unavailable.
    printf("\nSORRY! Location not available. Try again");
    user_game();
  }
  for(int i=0;i<3;i++)
  {
    //fill the game board with user's move.
    for(int j=0;j<3;j++)
    if(matrix[i][j]==box)
    {
      matrix[i][j]=User;
      break;
    }
  }
  //game board display.
    for(int i=0;i<3;i++)
    {
      for(int j=0;j<3;j++)
      {
        printf("\t%c\t|",matrix[i][j]);
      }
      printf("\n");
      if(i==2)
          continue;
      printf("    ----------------------------------------\n");
    }
```

```
        flag==0;
        char Last_player='U';
        check_game('U');  //function call.
        return;
    }
//end of user_game()


//function definitionfor comp_game()
    void comp_game()
    {
        //fill in for computer.
      printf("\n\n\nIts computers turn.\n");
      flag=0;
      int loc;
      char k;
      for(int i=0;i<9;i++)
      { //check location availablity.
        if(loc_avail[i]!='a')
        {
          k=loc_avail[i];
          loc_avail[i]='a';
          break;
        }
      }

      for(int i=0;i<3;i++)
      {
        //game_board filling by computer.
        for(int j=0;j<3;j++)
        if(matrix[i][j]==k)
        {
          matrix[i][j]=comp;
```

```
        }
      }
      printf("\nThe computer is thinking...\n\n");
      //game_board display.
      sleep(1);
      for(int i=0;i<3;i++)
      {
        for(int j=0;j<3;j++)
        {
          printf("\t%c\t|",matrix[i][j]);
        }
        printf("\n");
        if(i==2)
            continue;
        printf("    ----------------------------------------\n");
      }
      flag==0;
      char Last_player='C';
      check_game('C');  //function call.
      return;
    }
//end od comp_game()


//function definition for result()
  void result(int key, int a)
  {
      //display result for the tic-tac-toe game.

      printf("GAME OVER.\n%c has WON the game.",key);
      if(key==User)
      {
```

```
        user[a].point+=10;
        printf("\nYou have won over the computer. CONGRAGULATIONS!
        \nYou won 10 points.\n");
        printf("press any key(except enter key) to continue:");
        scanf("   %c",&garbage);
        return;
      }
      else
      {
        printf("\nThe computer has won the game.
        You have got 0 points in this game.\n");
        printf("press any key(except enter key) to continue:");
        scanf("   %c",&garbage);
        return;
      }

   }
//end of result.


//function definition of lockdownActivities()
void lockdownActivities()
{
    //function to display lock-down activities.
  int choice;
  char ch;
  LA1:printf("\n\n\t\t\t\t\t\tLOCKDOWN ACTIVITIES\n\n
  \nEasy cooking recipes\n\t1. Milkshake\n\t
  2.Sandwich\n\t3.French Fries.\n\nDifferent levels of
  exercises\n\t4.Easy exercises\n\t5.Medium Exercises\n
  \t6.Difficult Excercises\n\nReading books\n\t7.The
  Alchemist\n\t8.The maze runner.\n\t9.The Kite runner.
  \n\n\t10.Go Back.\n");
```

```
printf("\n\nEnter the number of your choice: ");
scanf("%d",&choice);
if(choice==10)
  return;
printf("\n");
if(choice==1||choice==2||choice==3)
{
switch(choice)
{
  case 1:

  printf("\n\tMilkshake recipe:\n");
  printf("\nTake 4 scoops of icecream,1/2 cup milk,1/2cup Hershey's syrup.
  \n1. Place ice cream, milk and syrup in blender container.
  \n2.Cover and blend until smooth.\n3.Transfer it to a glass.
  \n4.Garnish with chocolate if required.\n");
  break;


  case 2:

  printf("\n\tSandwich recipe:\n");
  printf("\nSpread mayonnaise, butter or cream cheese all the way
  to the edges of each slice of bread to create a seal against wet
  sandwich fillings.\n Also, try packing high moisture
  ingredients, like tomatoes, pickles, and cucumbers, separately.
  \nJust add them to the sandwich when you're
  ready to eat.\n Grill the bread for better taste.\n");
  break;

  case 3:

  printf("\n\tFrench fries recipe:\n");
```

```
  printf("\nSlice potatoes into French fries, place them into cold water
  so they won't turn brown.\nThen start to prepare the oil.
  Heat oil in a large skillet over medium-high heat.\nWhile
  the oil is heating, sift the flour, garlic salt,
  onion salt, regular salt and paprika into a large bowl.
  \nThen fry the slices in oil till golden colour and add
  it into the spices bowl. Mix well and enjoy.\n");
  break;
}
}
else if(choice==4||choice==5||choice==6)
{
  switch (choice)
  {
  case 4:

  printf("\n\tEasy exercises:\n\n(1 set)\n1.High stepping = 30 seconds
  \n2.Squats = 12\n3.Mountain climber = 14");
  break;

  case 5:

  printf("\n\tMedium exercises:\n\n(2 sets)\n1.High stepping = 30 seconds
  \n2.Squats = 12\n3.Mountain climber = 14");
  break;

  case 6:

  printf("\n\tHard exercises:\n\n(3 sets)\n1.High stepping = 30 seconds
  \n2.Squats = 12\n3.Mountain climber = 14");
  break;
  }
  }
```

```
else if(choice==7||choice==8||choice==9)
{
 switch(choice)
 {
 case 7:

 printf("\nSummary of The Alchemist:\n\tThe Alchemist
 follows the journey of an Andalusian shepherd boy named Santiago.
 \nBelieving a recurring dream to be prophetic, he asks a Gypsy
 fortune teller in the nearby town about its meaning.
 \nThe woman interprets the dream as a prophecy telling
 the boy that he will discover a treasure at the
 Egyptian pyramids.\n");
 break;

 case 8:

 printf("\nSummary of The Maze Runner:\n\tThomas wakes
 up in a strange elevator, with memories lost and no idea
 what is going to happen.\nHe is accepted into a glade full
 of other teenage boys who call themselves Gladers.
 \nAfter learning about the Maze that surrounds them all,
 Thomas becomes obsessed with finding a way out,
 which could mean certain death.\n");
 break;

 case 9:

 printf("\nSummary of The Kite Runner:\n\tThe story skips
 to winter, when the kite-fighting tournament occurs.
 \nBoys cover their kite strings in glass and battle to see
 who can sever the string of the opposing kite.\nWhen a
 kite loses, boys chase and retrieve it, called kite running.
```

```
    \nWhen Amir wins the tournament, Hassan sets off to
    run the losing kite.\n");
    break;
    }
   }
printf("\n\n\nEnter 1 to continue reading. Enter any other key
(except enter key) to go back to the main menu: ");
scanf(" %c",&garbage);
if(garbage==49)
goto LA1;
}
//end of lockdownActivities().


//function definition of selfAssessment()
void selfAssessment(int c,int b)
{
    //Self assessment function.
    int choice;
    printf("\n\t\t\t\t\t\tWelcome To The Self-Assessment");
    printf("\n\n Please enter 1 to do the self assessment and
    enter 2 to access your previous assessment: ");
    scanf("%d",&choice);
    if(choice==1)
    {
      //get information from the user by their responses to questionnaire.
        printf("\n\nQUESTION1:");
        printf("\nPress 1 if any one or more of these condition are satisfied
        \n Press 2 if these conditions are not applicable for you :-
        \n\n Are you immuno-compromised (for example if you have HIV/AIDS,
        are receiving immuno-suppression therapy or treatment for cancer
        or have had a transplant)\nHave returned to India
        from foreign travel in the last 4 months or
```

```
has a travel history inside the country in the
last 60 days. \n Have come into contact with someone
with respiratory symptoms. \n\n Enter your Choice: ");
scanf("%d",&patient[c].ch1);
printf("\n\nQUESTION2:");
printf("\nPress 1 if you experience any one or more of these
symptoms: \n Press 2 if these conditions are not
applicable for you:- \n\n Severe difficulty breathing
(for example, struggling for each breath, speaking in
single words). \n Severe chest pain. \n Having a
very hard time waking up. \n Feeling confused.
\n Lost consciousness. \n \n Enter your Choice: ");
scanf("%d",&patient[c].ch2);
printf("\n\nQUESTION3:");
printf("\nPress 1 If this evaluation is for a child of age
below 5 years or an adult above 60 years of age.
\nPress 2 if these conditions are not applicable for you
\n\n Enter your choice: ");
scanf("%d",&patient[c].ch3);
if(patient[c].ch3==1)
{
    printf("\n\nQUESTION4:");
    printf("\nPress 1 if you experience any of these symptoms:\n
    Press 2 if these conditions are not applicable for you:-
    \nDo you experience any floppiness or a lack of response? \n ");
    scanf("%d",&patient[c].ch4);
    printf("\nThank you...Your result is being generated....
    Please wait for some time...");
    sleep(1);
}
else
{
    printf("\nThank you...Your result is being generated....
```

```
    Please wait for some time...");
    sleep(1);
}

//Display result and save the result in i+1_user_details.txt file.
if((patient[c].ch1==1)&&( patient[c].ch2==1)&&
( patient[c].ch3==2))
{

  printf("\n\n\tRESULT:-\n ALERT!! You are at a high risk of a
  COVID-19 infection.\n\nPlease take all necessary
  precautions and Please contact the nearest hospital for
  treatment in case of severe display of symptoms.\n");
  fprintf(fptr[b],"\nSelf-Assessment Result:\nRESULT:-
  \n ALERT!! You are at a high risk of a COVID-19
  infection.\n\nPlease take all necessary precautions
  and Please contact the nearest hospital for treatment
  in case of severe display of symptoms.\n\n");
}
else if((((patient[c].ch1==1)&&(patient[c].ch2==2))||
((patient[c].ch1==2)&&( patient[c].ch2==1)))&&
( patient[c].ch3==2))
{

    printf("\n\n\tRESULT:-\n The risk of COVID-19 infection is
    medium. Please follow all the self isolation protocols
    and keep in check for new symptoms. In case of any new
    symptoms, contact the nearest hospital\n");
    fprintf(fptr[b],"\nSelf-Assessment Result:\nRESULT:-
    \n The risk of COVID-19 infection is medium.
    Please follow all the self isolation protocols and
    keep in check for new symptoms. In case of any new
    symptoms, contact the nearest hospital.\n\n");
```

```
}
else if((patient[c].ch1==1)&&(patient[c].ch2==1)&&
( patient[c].ch3==1))
{
    printf("\n\n\tRESULT:-\n ALERT!! Your child/senior citizen
    is at a high risk of having a COVID-19 infection.
    Kindly rush to the nearest hospital\n");
    fprintf(fptr[b],"\nSelf-Assessment Result:\nRESULT:-
    \n ALERT!! Your child/senior citizen is at a high
    risk of having a COVID-19 infection. Kindly rush
    to the nearest hospital.\n\n");
}
else if((((patient[c].ch1==1)&&( patient[c].ch2==2))
||((patient[c].ch1==2)&&(patient[c].ch2==1)))
&&(patient[c].ch3==1))
{
    fprintf(fptr[b],"\nSelf-Assessment Result:\nRESULT:-
    \n The risk of COVID-19 infection is medium. But
    your child/senior citizen might be facing some
    other infection. Kindly rush to the hospital to
    be on the safer side.\n");
    printf("\n\n\tRESULT:-\n The risk of COVID-19 infection is
    medium. But your child/senior citizen might be
    facing some other infection. Kindly rush to
    the hospital to be on the safer side.\n\n");

}
else
{
    fprintf(fptr[b],"\nSelf-Assessment Result:\nRESULT:-
    \n The risk of COVID-19 infection is low. However
    you can be a disease carrier to immuno-compromised
    people.\n Hence, Please follow all safety protocols
```

```
        to ensure your and your beloved's safety.\n");
        printf("\n\n\tRESULT:-\n The risk of COVID-19 infection
        is low. However you can be a disease carrier to
        immuno-compromised people.\n Hence, Please follow
        all safety protocols to ensure your and your
        beloved's safety.\n\n");
    }
}

else if(choice==2)
{
  //display previous assessment results.
    printf("\n\n User name= %s",user[b].user_name);
    z: printf("\nDo you wish to see the entire result(press 1)
    or the end result(press 2): ");
    int n;
    scanf("%d",&n);
    if(n==1)
    {
      //display entire result from result database.
        printf("\n\nQUESTION1:");
        printf("\nPress 1 if any of these condition are satisfied:
        \n Press 2 if these conditions are not applicable for you:-
        \n\n Are you immuno-compromised (for example if you have
        HIV/AIDS, are receiving immuno-suppression therapy or
        treatment for cancer or have had a transplant). \n Have
        returned to India from travel foreign in the last 4
        months or have recorded inter-country travel in the last
        60 days. \n Have come into contact with someone with
        respiratory symptoms. \n");
        printf("\nYour option was %d",patient[b].ch1);
        printf("\n\nQUESTION2:");
        printf("\nPress 1 if you experience any of these symptoms:\n
```

```
    Press 2 if these conditions are not applicable for you:-
    \n Severe difficulty breathing (for example, struggling
    for each breath, speaking in single words) \n Severe
    chest pain \n having a very hard time waking up. \n
    Feeling confused. \n Lost consciousness. \n");
    printf("\nYour option was %d",patient[b].ch2);
    printf("\n\nQUESTION3:");
    printf("\nPress 1 If you are a child of age below 5
    or a senior adult above 60 years. \n Press 2
    if these conditions are not applicable for you \n");
    //printf("Does the child experience any floppiness or a
    lack of response? \n");
    printf("\nYour option was %d",patient[b].ch3);
    if(patient[b].ch3==1)
    {
        printf("\n\nQUESTION4:");
        printf("\nPress 1 if you experience any of these symptoms:\n
        Press 2 if these conditions are not applicable for you:-
        \nDo you experience any floppiness or a lack of
        response? \n ");
        printf("\nYour option was %d",patient[b].ch4);
    }
    if((patient[b].ch1==1)&&( patient[b].ch2==1)&&
    ( patient[b].ch3==2))
{
    printf("\nRESULT:-\nALERT!!You are at a high risk of a
    COVID-19 infection\nPlease contact the nearest hospital
    for treatment\n");
}
else if((((patient[b].ch1==1)&&(patient[b].ch2==2))
||((patient[b].ch1==2)&&( patient[b].ch2==1)))&&
( patient[b].ch3==2))
{
```

```
        printf("\nRESULT:-\nThe risk of COVID-19 infection is medium.
        Please follow all the self isolation protocols and keep
        in check for new symptoms. In case of any new symptoms,
        contact the nearest hospital\n");
    }
    else if((patient[b].ch1==1)&&(patient[b].ch2==1)&&
    ( patient[b].ch3==1))
    {
        printf("\nRESULT:-\nALERT!!Your child or senior citizen is
        at a high risk of having a COVID-19 infection.
        Kindly rush to the nearest hospital\n");

    }
    else if((((patient[b].ch1==1)&&( patient[b].ch2==2))
    ||((patient[b].ch1==2)&&(patient[b].ch2==1)))
    &&(patient[b].ch3==1))
    {
        printf("\nRESULT:-\nThe risk of COVID-19 infection is medium.
        But your child/senior citizen might be facing some
        other infection. Kindly rush to the hospital to be
        on the safer side.\n");

    }
    else
    {
        printf("\nRESULT:-\nThe risk of COVID-19 infection is low.
        Please follow all safety protocols to ensure your safety\n");

    }

    }
    else if(n==2)
    {
```

```
    if((patient[b].ch1==1)&&( patient[b].ch2==1)&&
    ( patient[b].ch3==2))
{
    printf("\nRESULT:-\nALERT!!You are at a high risk of a
    COVID-19 infection\nPlease contact the nearest
    hospital for treatment\n");

}
else if((((patient[b].ch1==1)&&(patient[b].ch2==2))
||((patient[b].ch1==2)&&( patient[b].ch2==1)))
&&( patient[b].ch3==2))
{
    printf("\nRESULT:-\nThe risk of COVID-19 infection is medium.
    Please follow all the self isolation protocols and keep in
    check for new symptoms. In case of any new symptoms,
    contact the nearest hospital\n");

}
else if((patient[b].ch1==1)&&(patient[b].ch2==1)&&
( patient[b].ch3==1))
{
    printf("\nRESULT:-\nALERT!!Your child/senior citizen is at
    a high risk of having a COVID-19 infection.
    Kindly rush to the nearest hospital\n");

}
else if((((patient[b].ch1==1)&&( patient[b].ch2==2))
||((patient[b].ch1==2)&&(patient[b].ch2==1)))
&&(patient[b].ch3==1))
{
    printf("\nRESULT:-\nThe risk of COVID-19 infection is medium.
    But your child/senior citizen might be facing some other infectio
    Kindly rush to the hospital to be on the safer side.\n");
```

```
        }
        else if((patient[b].ch1==0)&&( patient[b].ch2==0)&&(patient[b].ch3==
        {
            printf("\nRESULT:-\nInvalid Result!!
            Please do the self assessment.\n");

        }
        else
        {
            printf("\nRESULT:-\nThe risk of COVID-19 infection
            is low. Please follow all safety protocols to
            ensure your safety\n");

        }

        }
        else
        {
            printf("\nInvalid choice. Re-enter\n");
            goto z;
        }
    }
printf("\n\n\nEnter any key(except enter key) to continue: ");
scanf(" %c",&garbage);

}
//end of selfAssessment()


////function definition of  safetyandrandom()
void safetyandrandom()
    {
```

```
//function to display safety and random facts.
int a,b,c,d,e,f;

S1: printf("\n\t\t\t\t\t\t\tSAFETY MEASURES AND RANDOM FACTS\n\n
Stay aware of the latest information on the COVID-19
outbreak, available on the WHO website and through your
national and local public health authority.\n Most countries
around the world have seen cases of COVID-19 and many are
experiencing outbreaks.\n Authorities in China and some other
countries have succeeded in slowing their outbreaks.\n
However, the situation is unpredictable so check regularly
for the latest news.\n");
printf("\n1.Protecting yourself and others from the spread
COVID-19\n");
printf("2.Advice on the safe use of alcohol-based hand
sanitizers\n");
printf("3.When and how to use masks\n");
printf("4.Common inquiries\n");
printf("5.COVID-19 Home care\n");
printf("6.COVID-19: Pregnancy & breastfeeding\n");
printf("7.Getting your workplace ready for COVID-19\n");
printf("8.Myth-Busters\n");
printf("9.Go back.\n");
printf("\nEnter your choice: ");

scanf("%d",&a);

if(a==9)
    return;
switch(a)
//display details according to user preference.
{
case 1:
```

```
printf("\n\nYou can reduce your chances of being infected or
spreading COVID-19 by taking some simple precautions:\n");
printf("\n1. Regularly and thoroughly clean your hands with
an alcohol-based hand rub or wash them with soap and
water.\n");
printf("\t\tWhy?Washing your hands with soap and water or
using alcohol-based hand rub kills viruses that may be on
your hands.");
printf("\n\n2. Maintain at least 1 meter (3 feet) distance
between yourself and others.");
printf("\n\t\tWhy? When someone coughs, sneezes, or speaks
they spray small liquid droplets from their nose or mouth
which may contain virus.");
printf("\n\n3. Avoid going to crowded places\n");
printf("\t\tWhy? Where people come together in crowds, you
are more likely to come into close contact with someone that
has COIVD-19\n\t\tAnd it is more difficult to maintain
physical distance of 1 metre (3 feet).\n");
printf("\n4. Avoid touching eyes, nose and mouth.\n");
printf("\t\tWhy? Hands touch many surfaces and can pick up
viruses. Once contaminated, hands can transfer the virus to
your eyes, nose or mouth.\n\t\tFrom there, the virus can
enter your body and infect you.\n");
printf("\n5. Make sure you, and the people around you, follow
good respiratory hygiene.This means covering your mouth and
nose with your bent elbow or tissue when you cough or
sneeze.\n  Then dispose of the used tissue immediately and
wash your hands.\n");
printf("\t\tWhy? Droplets spread virus. By following good
respiratory hygiene, you protect the people around you from
viruses such as cold, flu and COVID-19.");
printf("\n\n6. Stay home and self-isolate even with minor
symptoms such as cough, headache, mild fever, until you
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recover. Have someone bring you supplies.\n   If you need to
leave your house, wear a mask to avoid infecting others.\n");
printf("\t\tWhy? Avoiding contact with others will protect
them from possible COVID-19 and other viruses.\n");
printf("\n7. If you have a fever, cough and difficulty
breathing, seek medical attention, but call by telephone in
advance if possible and follow the directions of your local
health authority. \n");
printf("\t\tWhy? National and local authorities will have the
most up to date information on the situation in your
area.\n\t\tCalling in advance will allow your health care
provider to quickly direct you to the right health
facility.\n\t\tThis will also protect you and help prevent
spread of viruses and other infections.\n");
printf("\n8. Keep up to date on the latest information from
trusted sources, such as WHO or your local and national
health authorities. \n");
printf("\t\tWhy? Local and national authorities are best
placed to advise on what people in your area should be doing
to protect themselves\n");
break;
case 2:
printf("\n\n   USE OF SANITIZER\n");
printf("\nTo protect yourself and others against COVID-19,
clean your hands frequently and thoroughly.\nUse
alcohol-based hand sanitizer or wash your hands with soap and
water.\nIf you use an alcohol-based hand sanitizer, make sure
you use and store it carefully.\n");
printf("\n1.Keep alcohol-based hand sanitizers out of
childrens reach. Teach them how to apply the sanitizer and
monitor its use.\n2.Apply a coin-sized amount on your
hands.There is no need to use a large amount of the
product\n3.Avoid touching your eyes, mouth and nose
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immediately after using an alcohol-based hand sanitizer, as
it can cause irritation.\n4.Hand sanitizers recommended to
protect against COVID-19 are alcohol-based and therefore can
be flammable.\nDo not use before handling fire or
cooking.\n5.Under no circumstance, drink or let children
swallow an alcohol-based hand sanitizer. It can be poisonous.
\n6.Remember that washing your hands with soap and water is
also effective against COVID-19.\n" );
break;
case 3:
printf("\n\n    WHEN TO WEAR MASK\n");
printf("\n1.If you are healthy, you only need to wear a mask
if you are taking care of a person with COVID-19.\n2. Wear a
mask if you are coughing or sneezing.\n3. Masks are effective
only when used in combination with frequent hand-cleaning
with alcohol-based hand rub or soap and water.\n4.If you wear
a mask, then you must know how to use it and dispose of it
properly.\n");
printf("\n\n    HOW TO WEAR A MASK\n");
printf("\n1.Before putting on a mask, clean hands with
alcohol-based hand rub or soap and water.\n2.Cover mouth and
nose with mask and make sure there are no gaps between your
face and the mask.\n3.Avoid touching the mask while using it;
if you do, clean your hands with alcohol-based hand rub or
soap and water.\n4.Replace the mask with a new one as soon as
it is damp and do not re-use single-use masks.\n5.To remove
the mask: remove it from behind (do not touch the front of
mask); discard immediately in a closed bin; clean hands with
alcohol-based hand rub or soap and water.\n");
printf("\nPlease note: Wearing a medical mask is one of the
prevention measures that can limit the spread of certain
respiratory viral diseases, including COVID-19.\nHowever, the
use of a mask alone is insufficient to provide an adequate
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level of protection, and other measures should also be
adopted.\n");
break;
case 4:
printf("\n\n   COMMON ENQUIRIES\n");
printf("\n1.Should I avoid hand shaking because of new
virus?\n2.Is wearing rubber gloves while out in public
effective in spreading virus?\n3.How can I grocery shop
safely?\n4.How should I wash fruits and vegetables?\n5.Can
virus spread through coins and notes?\n6.What are essential
services?\n7.How do I properly disinfect surface?\n8.Can pets
get virus?\n");
printf("\nEnter your choice: ");
scanf("%d",&b);
switch(b)
 {
     case 1:
     printf("Yes,respiratory diseases can spread through
     shaking hands, touching hands,eyes and mouth\nGreet
     people with nod, bow and Namaste instead.");
     break;
     case 2:
     printf("No, regularly washing hands provide more
     protection than wearing gloves.\nRubber gloves can be
     source of COVID 19\n");
     break;
     case 3:
     printf("While grocery shopping keep atleast 1m distance
     from others.\nIf possible sanitize trolleys and
     baskets.\nThere is currently no confirmed case of virus
     spreading through fruits and packages.\n");
     break;
     case 4:
```

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printf("Before handling them wash your hands with
water.Then wash them thoroughly with clean water");
break;
case 5:
printf("Currently there is no proof to confirm or
disapprove hat the virus can be spread through coins and
notes.\nBut virus can persists on surfaces.Therefore it
is better to wash hands regularly.");
break;
case 6:
printf("1.Transportation of all goods without
distinction of essential and non-essential have been
allowed.\n2.Grocery shops.\n3.The entire supply chain of
milk collection and distribution, including its
packaging material, is allowed.\n4.Newspaper delivery
supply chain is also allowed under print
media\n5.Hospitals and all related medical
establishments, including their manufacturing and
distribution units, both in public and private sector,
will continue to remain fully functional. The
transportation for all medical personnel, nurses,
para-medical staff and other hospital support services
are permitted.\n6.Banks, insurance offices and
ATMs\n7.Delivery of all essential goods including food,
pharmaceutical, medical equipment through
e-commerce.\n8.Petrol pumps, LPG, petroleum and gas
retail and storage outlets.\n");
break;
case 7:
printf("Complete disinfecting protocol includes four
steps: \nwiping a surface of obvious dirt and residue;
\n""dwell time"" to let the disinfectant sit; \nwiping
the surface clean; and \nrinsing with water.");
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        break;
        case 8:
        printf("In April, a dog in North Carolina tested
        positive for COVID-19,\nas did two pet cats in New York
        and a eight tigers at New York City Bronx Zoo.\nHowever,
        there has been no evidence that pets such as dogs or
        cats can spread the COVID-19.\nAccording to the World
        Health Organization and the C.D.C. (The animals showed
        mostly mild symptoms     though the tiger was visibly sick
            and have recovered.)\nStill,if you are sick with
        COVID-19, it is best not to pet your family dog. And
        avoid petting other people''s dogs as well.");
        break;
        default:
        printf("Question does not exist\n");

}
break;
case 5:
printf("\n\nCOVID HOME CARE\n");
printf("\n1.For ill people.\n2.For all members of
household\n");
printf("\nEnter the number to know more about it:");
scanf("%d",&c);
switch(c)
{
    case 1:
    printf( "\nIf you're ill with cough and fever\n1.Wash
    hands frequently\n2.Stay at home.Do not attend public
    places.\n3.Stay in a separate room. Maintain atleat 3m
    distance from family.\n4.While coughing or sneezing use
    disposable tissue.\n5.Drink plenty of fluid and eat
    nutritious food\n");
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        printf("\nWhen to Seek Emergency Medical Attention\n");
        printf("Look for emergency warning signs* for COVID-19.
        If someone is showing any of these signs, seek emergency
        medical care immediately\n1.Trouble
        breathing\n2.Persistent pain or pressure in the
        chest\n3.New confusion\n4.Inability to wake or stay
        awake\n5.Bluish lips or face\n");
        break;
        case 2:
        printf("\nIf any household member is ill then\n1.Wash
        hands regularly. Specifically after\n  (a)coughing or
        sneezing\n  (b)preparing and eating food\n  (c)After
        using toilet\n  (d)After caring sick person\n");
        printf("2.Avoid sharing personal items such as
        soap,towels,utensils and drinks\n Designate a bathroom
        for the patient.\n");
        printf("3.Monitor everyone's symptoms such as fever,
        coughing and difficulty in breathing\n");
    }
break;
case 6:
printf("\n\nPREGNANCY AND BREASTFEEDING\n");
printf("\nAll Women have right to safe and positive child
birth, whether or not they are positive COVID-19 cases.\n");
printf("We have a collection of answers to questions parents might ha
sources to provide you with useful information. \n");
printf("\n1.I am pregnant.Will it Hurt the baby if  I get
COVID during pregnancy?\n2.I am pregnant.Is it easier for
pregnant women to become ill with COVID?\n3.How do I protect
myself from COVID during pregnancy?\n4.What happens when a
women with COVID-19 gives birth to baby?\n5.Can I breastfeed
if I have COVID-19?\n");
printf("Enter the question number to know the answer: ");
```

```
scanf("%d",&d);
printf("\n\n");
switch(d)
    {
    case 1:
    printf("At this time, there is not enough evidence to
    determine whether the virus is transmitted from a mother
    to \nher baby during pregnancy, or the potential impact
    this may have on the baby.This is currently being\n
    investigated.at this time. A small number of problems
    with pregnancy or delivery (e.g. preterm birth)\nhave
    been reported in babies born to mothers who tested
    positive for COVID-19 during their pregnancy.\n However,
    it is not clear if these outcomes were actually related
    to maternal infection or not.\n");
    break;
    case 2:
    printf("The Royal College of Obstetricians and
    Gynecologists state that pregnant women do not appear to
    be more\nsusceptible to the consequences of infection
    with COVID-19 than the general population.\nPregnant
    women experience changes in their bodies that may
    increase their risk of some infections.\nIt is known that
    with viruses from the same family as COVID-19, and other
    viral respiratory infections,\nsuch as influenza, women
    have had a higher risk of developing severe
    illness.\nThis is why the it is always important for
    pregnant women to protect themselves from illnesses.\n");
    break;
    case 3:
    printf("Pregnant women should do the same things as the
    general public to avoid infection.\n");
    break;
```

```
case 4:
printf("In order to reduce the risk of transmission of
COVID-19 to the newborn, when a mother with COVID-19
gives birth,\nthe baby may be temporarily separated from
the mother in the immediate postpartum setting.\nIf the
temporary separation is prolonged, primarily because the
mother needs medical care for herself,providing the baby
with expressed breast milk is recommended.\nIf possible,
a dedicated breast pump should be provided.\nSpecial care
must be taken to clean and disinfect the breast pump
prior to it being used.\nJohns Hopkins Medicine states
that once the mothers symptoms improve and she and her
baby \nare ready to be discharged home, it is possible
for her to either continue using expressed \nbreast milk
or to breastfeed,taking the necessary precautions to
avoid spreading the virus \nto her infant. These include
washing hands before holding her baby, and wearing a face
mask \nwhen in close contact with her baby\n");
break;
case 5:
printf("The Academy of Breastfeeding Medicine and the WHO
state that considering the benefits of breastfeeding and
the \ninsignificant role of breast milk in the
transmission of other respiratory viruses,\nthe mother
can continue breastfeeding, while applying all the
necessary precautions.\nThere is limited evidence for the
presence of viral RNA in breast milk,\nwhile there is
neither evidence for active virus in breast milk nor
transmission via breast milk. \nCurrently, the primary
concern is not whether the virus can be transmitted
through breast milk,\nbut rather whether an infected
mother can transmit the virus through respiratory
droplets breastfeeding.\nPrecautions to avoid spreading
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        the virus to your infant include washing hands before
        holding your baby,\nand wearing a face mask when in close
        contact with your baby as, for example, during direct
        breastfeeding. \n");
        break;
        }
break;
case 7:
printf("\n\nWORKSPACE READY FOR COVID-19\n");
printf("1.Simple ways to prevent the spread of COVID-19 in
your workplace\n2.How to manage COVID-19 risks when
organizing meetings and events?\n3.Getting your workplace
ready in case COVID-19 arrives in your community\n");
printf("\nTo know more about above enter the number: ");
scanf("%d",&e);
printf("\n\n");
switch(e)
{
        case 1:
        printf("\n  The low-cost measures below will help prevent
        the spread of infections in your workplace,\n such as
        colds, flu and stomach bugs, and protect your customers,
        contractors,and employees.\n  Employers should start
        doing these things now, even if COVID-19 has not arrived
        in the\n communities where they operate.These  measures
        can reduce  working days lost  due  to illness\n  And
        stop or slow the spread of COVID-19 if it arrives at one
        of your workplaces.\n");
        printf("\n1.Make sure your workplaces are clean and
        hygienic.\n  Surfaces (e.g. desks and tables) and objects
        (e.g. telephones, keyboards) need to be wiped with
        disinfectant regularly\n");
        printf("\n2.Promote regular and thorough hand-washing by
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employees, contractors,and customers.\n Put sanitizing
hand rub dispensers in prominent places around the
workplace.\n Make sure these dispensers are regularly
refilled Display posters promoting hand-washing.\n ask
your local public health authority for these or consult
www.WHO.int.\ n Combine with other communication measures
such as offering guidance from occupational\n health and
safety officers, briefings at meetings,and information on
intranet sitesto promote hand-washing.\n Make sure that
staff, contractors,and customers have access to places
where they can wash their hands with soap and water");
printf("\n3.Promote good respiratory hygiene in the
workplace.\n Display posters promoting respiratory
hygiene.\n Ensure that face masks or paper tissues are
available at your workplaces, along with closed bins for
hygienically disposing of them\n");
printf("\n4.Advise employees and contractors to consult
national travel advice before going on business
trips.\n");
printf("\n5.Brief your employees, contractors,and
customers that if COVID-19 starts spreading in your
community anyone with even a mild cough or
mild-fever(37.3 C or more)needs to stay at home. \n
Display posters with this message in your
workplaces.\n Make clear to employees that they will be
able to count this time off as sick leave\n");
break;


case 2:
printf("\nKey considerations to prevent or reduce
COVID-19 risks.\n");
printf("\nBEFORE the meeting or event.\n");
```

```
printf("\n1.Develop and agree a preparedness plan to
prevent infection at your meeting or event.\n Conduct
teleconference or on-line event when ever it is
possible.\n Meeting  be scaled down so that fewer people
attend.\n Pre-order  sufficient supplies  and  materials
including tissues  and hand  sanitizer  for  all
participants.\n Have surgical masks  available  to  offer
anyone  who  develops symptoms.\n Actively monitor where
COVID-19 is circulating.Advise participants in
advance\nthat if they have any symptoms or feel unwell,
they should not attend.\n");
printf("\n2.Develop and agree a response plan in case
someone at the meeting becomes ill \nwith symptoms of
COVID-19 (dry cough, fever, malaise). This plan should
include at least:\nIdentify  a room or area where
someone who is feeling unwell or has symptoms can be
safely isolated.\nHave a plan for how they can be safely
transferred from there to a health facility.\n Know what
to do if a meeting participant, staff member,or service
provider tests positive for COVID-19\n during or just
after the meeting\n");
printf("\nDURING the meeting \n");
printf("\n1.Provide  information  or  a  briefing,
preferably  both  orally  and  in  writing, \non COVID-19
and the measures that organizers are taking to make this
event safe for participants.\nEncourage regular
hand-washing or use of an alcohol rub by all participants
at the meeting or event.\nEncourage participants to cover
their face if they cough or sneeze. \nSupply tissues and
closed binsfor disposal.\n");
printf("\n2.Display dispensers of alcohol-based hand rub
prominently around the venue\n");
printf("\n3.If there is space, arrange seats so that
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participants are at least 1 meterapart\n");
printf("\n4.Open windows and doors whenever possible to
make sure the venue is well ventilated.\n");
printf("\n5.If anyone who starts to feel unwell, follow
your preparedness plan or call your hotline.\n\n");
printf("\nAFTER the meeting\n");
printf("\n1.Retain the names and contact details of all
participants for at least one month.\n2.If someone at the
meeting or event was isolated as a suspected COVID-19
case, \nthe organizer should inform participants.They
should be advised to monitor themselves\nfor symptoms for
14 days and take their temperature twice a day.\n3.If
they develop even a mild cough or low-grade fever (i.e. a
temperature of 37.3 C or more)\nthey should stay at home
and self-isolate.\n");
break;


case 3:
printf("\nGetting your workplaceready in case COVID-19
arrives in your community.\n");
printf("\n1.Develop a plan for what to do if someone
becomes ill with suspected COVID-19 at one of your
workplaces.\nThe plan should cover putting the ill person
in a room or area where they are isolated from others in
the workplace.\nConsider how to identify persons who may
be at risk, and support them.\nThis could include persons
who have recently traveled to an area reporting cases or
other personnel who have conditions that put them at
higher risk of serious illness \n(e.g. diabetes, heart
and lung disease, older age).\n");
printf("\n2.Promote regular teleworking across your
organization. \nIf there is an outbreak of COVID-19 in
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        your community the health authorities may advise
        people to avoid public transport and crowded
        places.\nTeleworking will help your business keep
        operating while\n your employees stay safe.\n");
        printf("\n3.Develop a contingency and business continuity plan fo
        business operates.\nThe plan should address how to keep
        your business running even if a significant number of
        employees, contractors and suppliers cannot come to
        your place of business.\nBe sure your plan addresses
        the mental health and social consequences of a case of
        COVID-19 in the workplace.\nFor small and medium-sized
        businesses without in-house staff health and
        welfare support, develop plans with your local health and
        social service providers.\n");
        break;


}
break;
case 8:
printf("\n\nMYTH-BUSTERS\n\n");
printf("1.Most people who get COVID-19 recover from it\n");
printf("2.Drinking alcohol does not protect you against
COVID-19 and can be dangerous\n");
printf("3.Thermal scanners CANNOT detect COVID-19\n");
printf("4.There are currently no drugs licensed for the
treatment or prevention of COVID-19\n");
printf("5.Adding pepper to your soup or other meals DOES NOT
prevent or cure COVID-19\n");
printf("6.COVID-19 IS NOT transmitted through houseflies or
mosquitoes\n");
printf("7.Exposing yourself to the sun or to temperatures
higher than 25C degrees DOES NOT prevent the COVID-19 disease
```

```
(COVID-19)\n");
printf("8.Being able to hold your breath for 10 seconds or
more without coughing or feeling discomfort DOES NOT mean you
are free from the COVID-19 disease or any other lung
disease.\n");
printf("9.Cold weather and snow CANNOT kill the new
COVID-19.\n\n");
printf("To know reason about above myths enter the number:");
scanf("%d",&f);
printf("\n\n");
switch(f)
{
    case 1:
    printf("Most people who get COVID-19 have mild or
    moderate symptoms and can recover thanks to supportive
    care.\nIf you have a cough, fever and difficulty
    breathing seek medical care early - call your health
    facility by telephone first.\n");
    break;
    case 2:
    printf("The harmful use of alcohol increases your risk of
    health problems.Thereby increase the risk of COVID\n");
    break;
    case 3:
    printf("Thermal scanners are effective in detecting
    people who have a fever (i.e. have a higher than normal
    body temperature).\n They cannot detect people who are
    infected with COVID-19.\n");
    break;
    case 4:
    printf("While several drug trials are ongoing, there is
    currently no proof that hydroxychloroquine or any other
    drug can cure or prevent COVID-19.\n");
```

```
            break;
            case 5:
            printf("Hot peppers in your food, though very tasty,
            cannot prevent or cure COVID-19..\n");
            break;
            case 6:
            printf("To date, there is no evidence or information to
            suggest that the COVID-19 virus transmitted through
            houseflies or mosquitoes. \n");
            break;
            case 7:
            printf("You can catch COVID-19, no matter how sunny or
            hot the weather is.\n");
            break;
            case 8:
            printf("The best way to confirm if you have  the virus
            producing COVID-19 disease is with a laboratory test.
            \nYou cannot confirm it with this breathing exercise,
            which can even be dangerous.\n");
            break;
            case 9:
            printf("There is no reason to believe that cold weather
            can kill the new COVID-19 or other diseases.\n");
            break;
            default:
            printf("MYth doesn't exist\n");

}
}

printf("\n\n\nEnter 1 to continue reading.Enter any other key(except
enter key) to go back to main menu : ");
scanf(" %c",&garbage);
```

```
if(garbage==49)
goto S1;

}
//end of safetyandrandom()


//function definition of presentCases()
void presentCases()
{
    //function to display present cases in the world.
    printf("\n\n\t*****************************WORLD
    COUNT*****************************************\n");
    printf("\n\tCountry\t Total cases \t New cases \t Total deaths \t
    New deaths \t Total recovered");
    printf("\n\tWorld  \t 6,441,152   \t  77,956   \t 380,265      \t
    3,075      \t 2,946,617      ");
    printf("\n\tUS     \t 1,870,238   \t  10,915\t 107,620      \t
    695        \t 618,867        ");
    printf("\n\tBRAZIL \t 539,045     \t  9,640    \t 30,486       \t
    440        \t 211,080        ");
    printf("\n\tRUSSIA \t 423,741     \t  8,863    \t 5,037        \t
    182        \t 186,985        ");
    printf("\n\tSPAIN  \t 287,012     \t  294      \t 27,127       \t
    0          \t N/A            ");
    printf("\n\tUK     \t 277,985     \t  1,653    \t 39,369       \t
    324        \t N/A            ");
    printf("\n\n\n\t*****************************INDIA
    COUNT*****************************************\n");
    printf("\n\tState       \t Total cases \t Total deaths \t Total
    recovered");
    printf("\n\tINDIA       \t 207,135     \t 5,829        \t 100,205
    ");
```

```
    printf("\n\tMaharashtra \t 70013       \t 2362          \t 30108
    ");
    printf("\n\tTamil Nadu  \t 23495       \t 184           \t 13170
    ");
    printf("\n\tDelhi       \t 20834       \t 523           \t 8746
    ");
    printf("\n\tGujarat     \t 17200       \t 1063          \t 10780
    ");
    printf("\n\tRajasthan   \t 8980        \t 198           \t 6040
    ");
    printf("\n\n\nThis information is manually updated every 24
    hours. The sources for the world count is worldometer covid and
    for India count is mygov.in.\n Thank you and Stay safe\n");


printf("\n\n\nEnter any key(except enter key) to continue: ");
scanf(" %c",&garbage);

}
//end of presentcases()


//function definition of internationalNews()
void internationalNews()
{
    //function to display international news.
    printf("\n\n                              LATEST INTERNATIONAL UPDATES
    ON CORONA VIRUS VACCINE                    ");
    printf("\n\n1.""REMDESIVIR""\nA California biotech company says
    its experimental drug remdesivir improved");
    printf("\nsymptoms when given for five days to moderately ill,
    hospitalised patients with COVID-19.");
    printf("\nGilead Sciences gave few details on Monday but said
```

```
full results would soon be published");
printf("\n in a medical journal.");
printf("\nRemdesivir is the only treatment that's been shown in a
rigorous experiment to help fight");
printf("\nthe coronavirus. A large study led by the National
Institutes of Health recently found it");
printf("\ncould shorten average recovery time from 15 days to 11
days in hospitalised patients with");
printf("\nsevere disease.");
printf("\nThe drug is given through an IV and is designed to
interfere with an enzyme the virus uses");
printf("\nto copy its genetic material. It's approved for
treating COVID-19 in Japan and is ");
printf("\nauthorized for emergency use in the United States for
certain patients.");
printf("\nThere were no deaths among patients on five days of the
drug, two among those on 10 days,");
printf("\nand four among patients getting standard care alone.
Nausea and headache were a little");
printf("\nmore common among those on the drug.");
printf("\n\n\n\n");
printf("\n2.""MODERNA""\n");
printf("\nUS-based Moderna Therapeutic's innovative messenger
RNA-1273 prototype is being seen as one");
printf("\nof the most promising contenders globally. The pharma
group has proceeded to conduct stage ");
printf("\n2 of the clinical trials and has started dosing
patients accordingly, a statement released by ");
printf("\nthe company said. In the second phase of its trial and
plans to enrol around 600 more patients");
printf("\nmoving forward.");
printf("\nEarly data collated from the first phase of the vaccine
trial have been by and large successful ");
```

```
    printf("\nwhich showed that mRNA-1272 spike protein was able to
    speed up the production of neccessary ");
    printf("\nantibodies in healthy patients. If deemed effective,
    the pharmaceutical giant plans to start mass");
    printf("\n-scale production to fight the ongoing battle.");
    printf("\n\n\n\n");
    printf("\n3.""SINOVAC""\n");
    printf("\nThe Chinese pharma company, Sinovac Biotech, who has
    been working on producing a vaccine earmarked");
    printf("\nCoronaVac are hopeful of getting good results and have
    even said that they are 99%% sure that the");
    printf("\nvaccine could help curb the spread of the virus.");
    printf("\nJust like its competitors, the company too is in stage
    2 of trials. The vaccine has shown promising");
    printf("\nresults in the first phase where it was tested on
    monkeys and if reports are to go by, stage 3 ");
    printf("\ntrials will be kickstarted in parts of the United
    Kingdom soon enough. They have already received ");
    printf("\nneccessary funding and factory space to spruce up
    productions if all the safety checks are passed");
    printf("\ngoing forward.\n");

printf("\n\n\nEnter any key(except enter key) to continue: ");
scanf(" %c",&garbage);



}
//end of internationalNews


//function definition of  lockdownRestrictions()
void lockdownRestrictions()
{
```

```
//function to display lockdown restrictions imposed by
governmentof INDIA.
int a;
R1: printf("\n\n\t\t\t\tLOCKDOWN RESTRICTIONS\n\nOn 24 March 2020,
the Government of India under Prime Minister Narendra Modi
ordered a nationwide lockdown for 21 days, limiting movement of
the entire 1.3 billion population of India\nas a preventive
measure against the COVID-19 pandemic in India\n");
printf("\n1.Timeline of events in the country:\n");
printf("2.Travel restrictions during COVID\n");
printf("3.Go Back.\n");
printf("\nEnter the number: ");
scanf("%d",&a);
if(a==3)
    return;
printf("\n\n");

switch(a)
{
case 1:
printf("\n\nPhase 1 (25 March to 14 April)\n\n");
printf("From 25 March all activities was completely ceased,nearly
all services and factories were suspended.\nThe government held
meetings with e-commerce websites and vendors to ensure a
seamless supply of essential goods across the nation during the
lockdown period\n");
printf("On 26 March, finance minister Nirmala Sitharaman
announced a  170  ,000 crore (US$24 billion) stimulus package to
help those affected by the lockdown.\nThe package was aimed to
provide food security measures for poor households through direct
cash transfers, free cereal and cooking gas for three months.\nIt
also provided insurance coverage for medical personnel.\n");
printf("On 27 March, the Reserve Bank of India announced a slew
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of measures to help mitigate the economic impacts of the
lockdown\n");
printf("The government had announced that the Indian Railways
would suspend passenger operations through 31 March. The national
rail network has maintained its freight operations to transport
essential goods.\nOn 29 March, the Indian Railways announced that
it would start services for special parcel trains to transport
essential goods.\n");
printf("On 5 April, citizens all over India cheered and showed
solidarity with the health workers, police, and all those
fighting the disease\nby switching off the electric lights at
home for 9 minutes from 9:00 p.m. to 9:09 p.m. and observed
lighting diya, candle; and flashing torchlight and mobile
flashlight.\n");
printf("\n\nPhase 2 (15 April to 3 May)\n\n");
printf("On 14 April, PM Modi extended the nationwide lockdown
till 3 May, with a conditional relaxation promised after 20 April
for the regions where the spread had been contained by then\n");
printf("On 16 April, lockdown areas were classified as red zone,
indicating the presence of infection hotspots, orange zone
indicating some infection, and green zone with no infections\n");
printf("The government also announced certain relaxations from 20
April, allowing agricultural businesses, including dairy,
aquaculture and plantations, as well as shops selling farming
supplies, to open\n");
printf(" Public works programmes were also allowed to reopen with
instructions to maintain social distancing.\n Banks and
government centres distributing benefits would open as well.\n");
printf("On 25 April, small retail shops were allowed to open with
half the staff. Again social distancing norms were to be
followed.\n");
printf("On 29 April, The Ministry of Home Affairs issued
guidelines for the states to allow inter-state movement of the
```

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stranded persons.\nStates have been asked to designate nodal
authorities and form protocols to receive and send such persons.
States have also been asked to screen the people, quarantine them
and to do periodic health checkups.\n");
printf("\n\nPhase 3 (4 May to 17 May)\n");
printf("The country has been split into 3 zones: red zones (130
districts), orange zones (284 districts) and green zones (319
districts).\n[48] Red zones are those with high coronavirus cases
and a high doubling rate, orange zones are those with
comparatively fewer cases and green zones are those without any
cases in the past 21 days\n");
printf("Normal movement is permitted in green zones with buses
limited to 50 percent capacity.\n Orange zones would allow only
private and hired vehicles but no public transportation. The red
zones would remain under lockdown.\n The zone classification
would be revised once a week\n");
printf("\n\nPhase 4 (18 May to 31 May)\n");
printf(" Unlike the previous extensions, states were given a
larger say in the demarcation of Green, Orange and Red zones and
the implementation roadmap.\n Red zones were further divided into
to containment and buffer zones.\n The local bodies were given
the authority to demarcate containment and buffer zones\n");
printf("\n\nPhase 5 (1 June to 30 June)\n");
printf("Lockdown restrictions would only be imposed in
containment zones, while activities would be permitted in other
zones in a phased manner.\n");
printf("This first phase of reopening is termed as Unlock 1 and
permits shopping malls, religious places, hotels and restaurants
to reopen from 8 June.\n");
printf("However, night curfews would be in effect from 9 p.m. to
5 a.m. in all areas and state governments would be allowed to put
suitable restrictions on all activities.\n");
printf("In Phase II, all educational institutions are scheduled
```

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 to reopen in July, pending consultations with state
 governments.\n");
 printf("In Phase III, easing of restrictions on international air
 travel, operation of metros and recreation (swimming pools,
 gymnasiums, theatres, entertainment parks, bars auditoriums and
 assembly halls)\n would be decided upon in August\n");
 printf("However, further in June, Human Resource And Development
 Minister Ramesh Nishank Pokhriyal announced in an interview that
 all the educational institutes will reopen after 15th August\n");
break;

case 2:
 printf("\n\nAIRWAYS\n");
printf("1. Flights to India are suspended.\n– This does not apply
to flights that carry goods for trade or essential goods and
supplies, and their crew members, helpers, cleaners.\n");
printf("2. Nationals of India are only allowed to return to India
by flights arranged by Ministry of Civil Aviation (MOCA).\n");
printf("3. Passengers with an Overseas Citizen of India (OCI) card
or booklet are allowed to enter India. They must be:\n– minor
children born to nationals of India abroad; or\n– coming to India
due to family emergencies like death in family; or\n– couples
where one spouse is an OCI holder and the other is a national of
India and they have a permanent residence in India; or\n–
university students whose parents are nationals of India living in
India.\n");
printf("4. Passengers with a Business visa (excluding B–3 visa for
sports) or an Employment visa issued after 1 June 2020 are allowed
to enter.\n");
printf("5. Passengers are required to undergo mandatory quarantine
for 14 days.\n");
printf("\n\nRAILWAYS\n");
printf("The railways, called the lifeline of the country, had
```

```
    suspended passenger services from March 22 midnight due to the
    pandemic.\n");
    printf("1.Indian Railways, among the world's largest rail
    networks, tentatively ground back to life on May 12 as a gradual
    lifting \nof the world's biggest coronavirus lockdown gathered
    pace even as new cases surged. \n");
    printf("2.All passengers with confirmed tickets will need to reach
    railway station before 90 mim\n");
    printf("3.Only passengers with tickets and thermal screening will
    be allowed in platform.\n");
    printf("4.Arogya Setu app must be installed.\n");
    printf("5.Passengers will have to bring their own food.\n");
    break;
    default:
    printf("Not valid number\n");

}
printf("\n\n\nEnter 1 to continue reading. Enter any other key
(except enter key) to go back to the main menu: ");
scanf(" %c",&garbage);
if(garbage==49)
goto R1;
}
//end of lockdownRestrictions


//The function definition for ratings_review()
void ratings_review(int index, struct database *users)
{
    char ch;
    int v=0;

    //display the objective of the function.
```

```
printf("\n\n\n\tDear %s,\n\n\tIt was our pleasure to serve you
today.\n\n\tWe are working very hard to build a higher quality
product for our customers.\n\n\tWe would love to learn more about
your opinion.",(*users).user_name);
printf("\n\n\tIt would only cost you a couple of minutes but it
would mean a lot to us.\n\n\tPlease Enter Y if you would like to
give us a feedback: ");
scanf("  %c", &ch);

if (!(ch=='y' || ch=='y'))
//the user does not want to review us.
    return;

//assign avg_rate to 0.
users->avg_rate=0.0;

//get user ratings.
printf("\n\n  On the scale of 1 to 5 (with 5 being the
highest):\n\n");
printf(" How would you rate the user interface of the program:
");
scanf("%d",&users->rating[v]); v++;
printf("\n How would you rate the available facilities of the
program: ");
scanf("%d",&users->rating[v]); v++;
printf("\n How would you rate data provided in the program: ");
scanf("%d",&users->rating[v]); v++;
printf("\n How would you rate the usefulness of the program to
you: ");
scanf("%d",&users->rating[v]); v++;

//calculate and display average ratings
for(int q=0; q<4; q++)
```

```
    {
        if(users->rating[q]>5)
                users->rating[q]=5;
        else
        if(users->rating[q]<1)
                users->rating[q]=1;
        else
        users->avg_rate+=users->rating[q];
    }
    users->avg_rate/=4.0;
    printf("\n\n\tYour average rating: %.2f\n",users->avg_rate);

    //Get user review.
    printf("\n\nPlease leave a review(less than 200 words):\n\n\t ");
    scanf("    %[^\n]s",users->review);

    sleep(1);

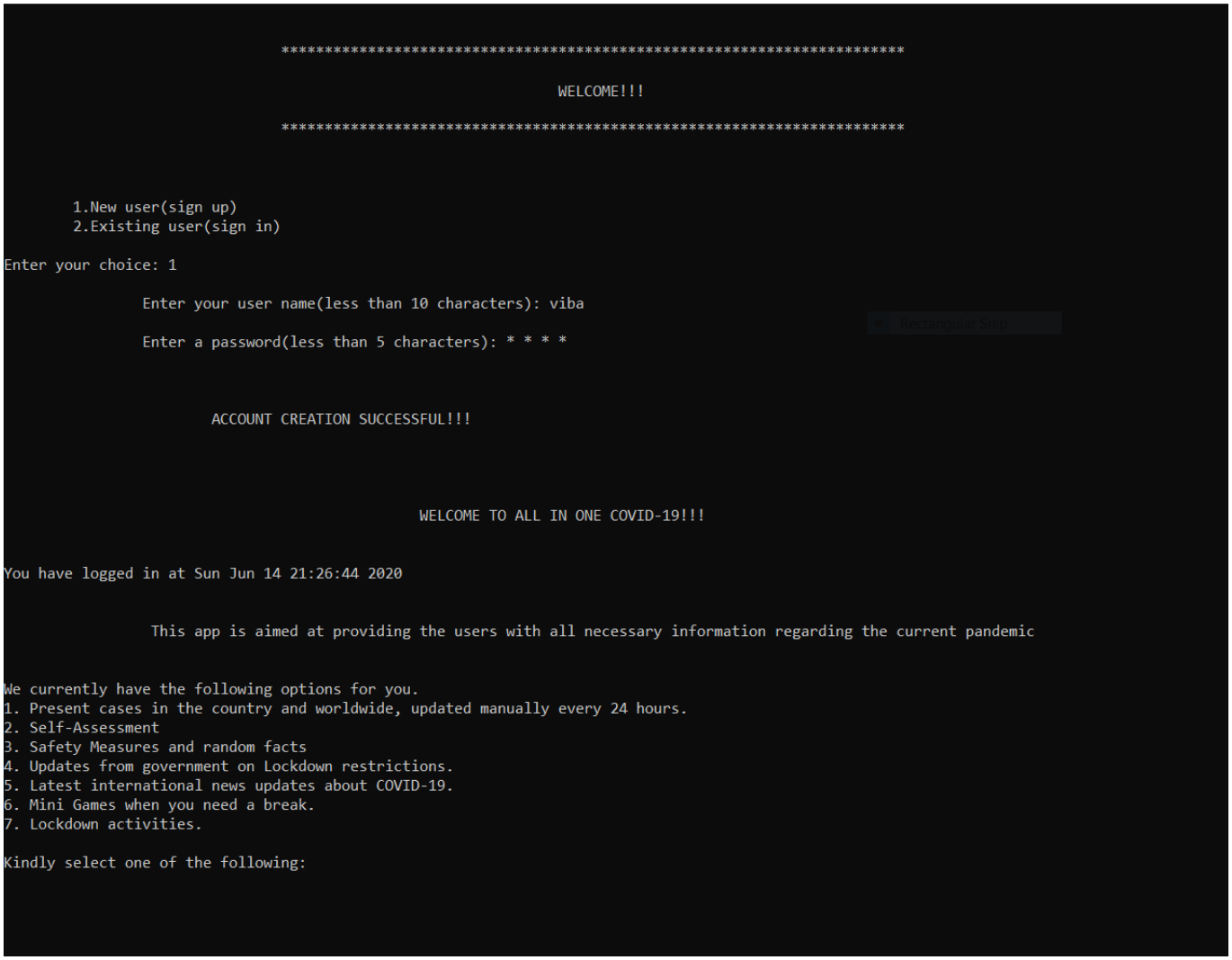
    printf("\n\n\tTHANK YOU!!! Your opinion is highly valued! It will
    only help us get better and serve you efficiently.\n\n");

    //save the user entered details into the file
    i+1_User_details.txt
    fprintf(fptr[index],"\nUSER RATING: Average rating: %.2f\nUSER
    REVIEW: %s\n",users->avg_rate,users->review);

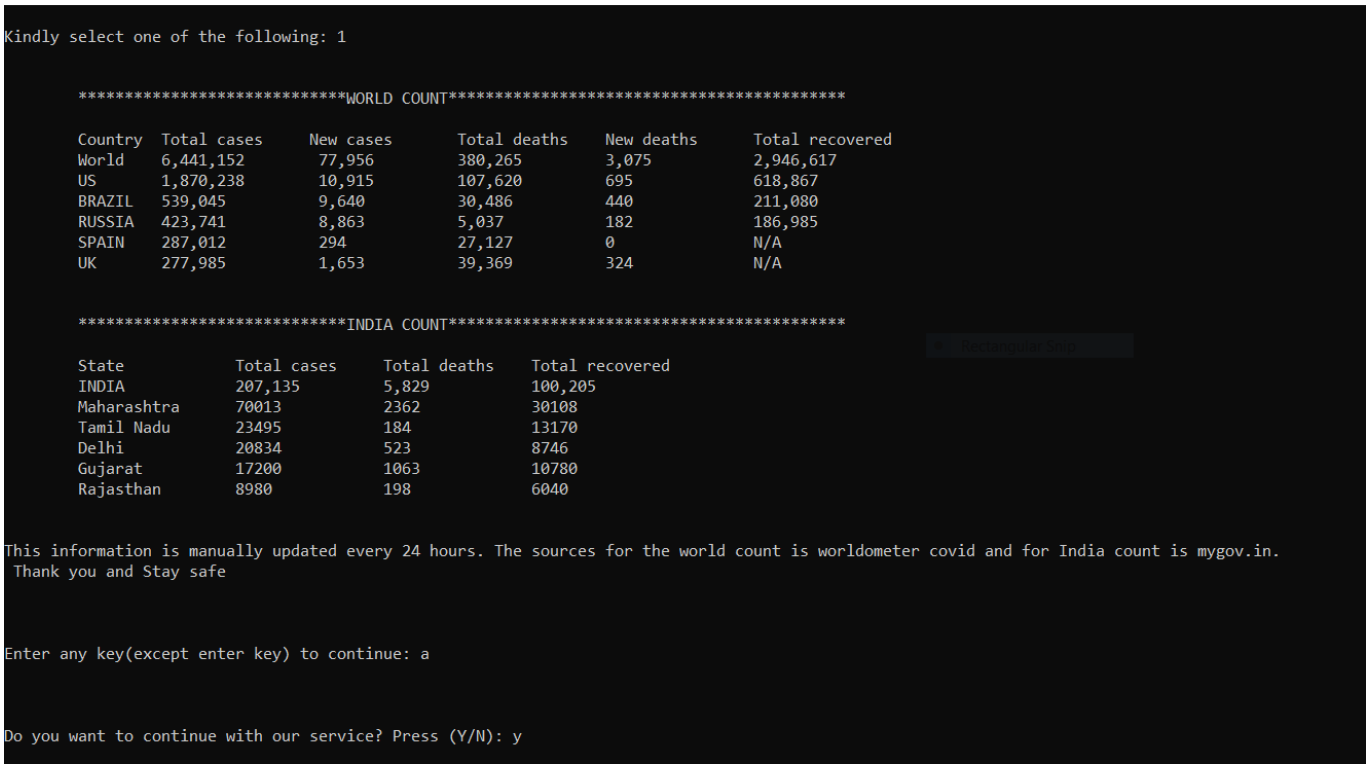
    return;
}
//end of rating_review().


//end of ALL_IN_ONE_COVID-19 source code.
```

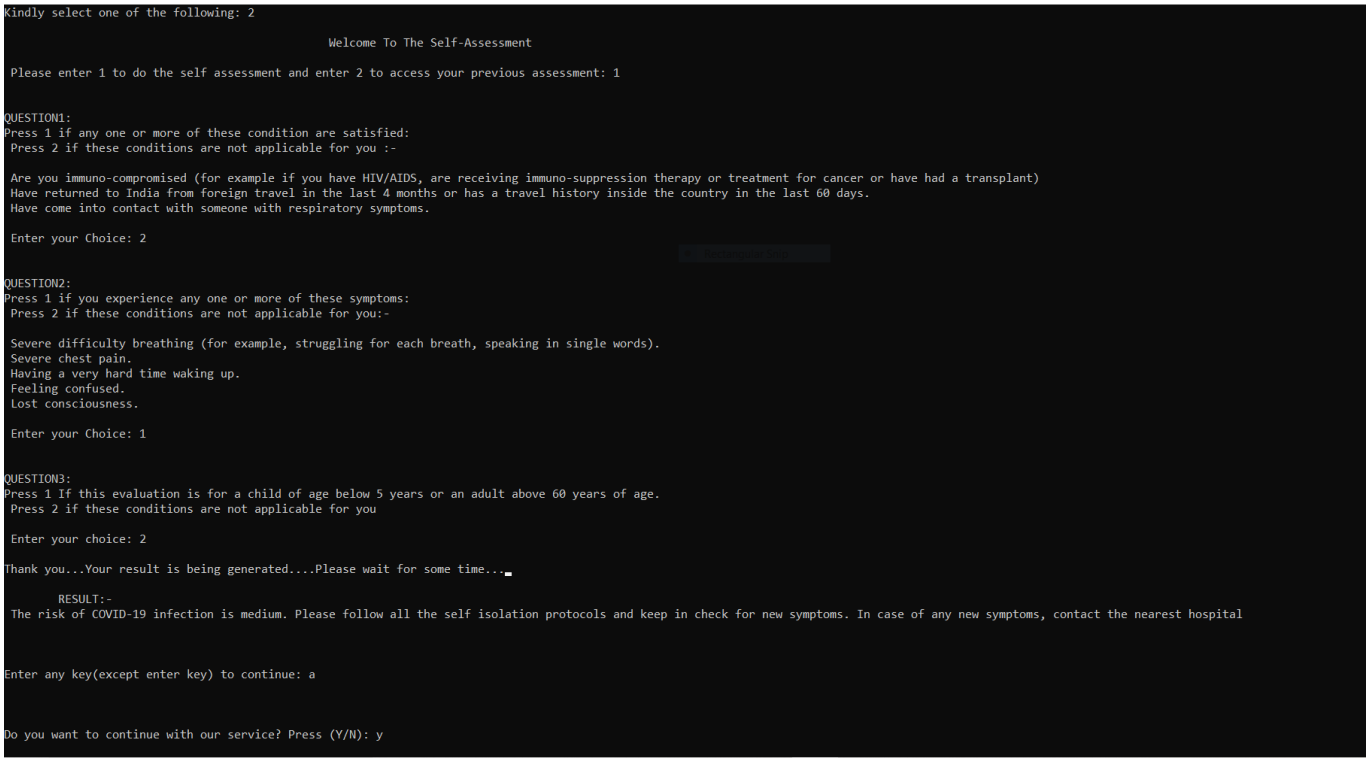
5 Output



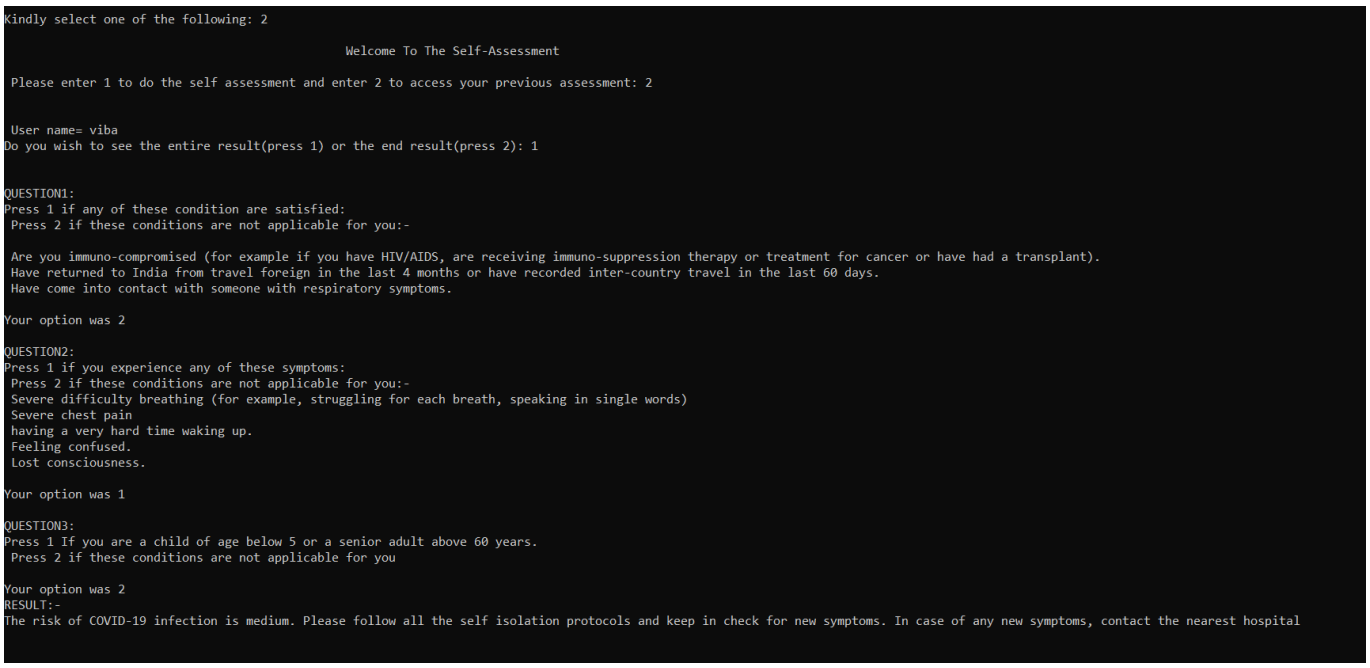
Output of main()



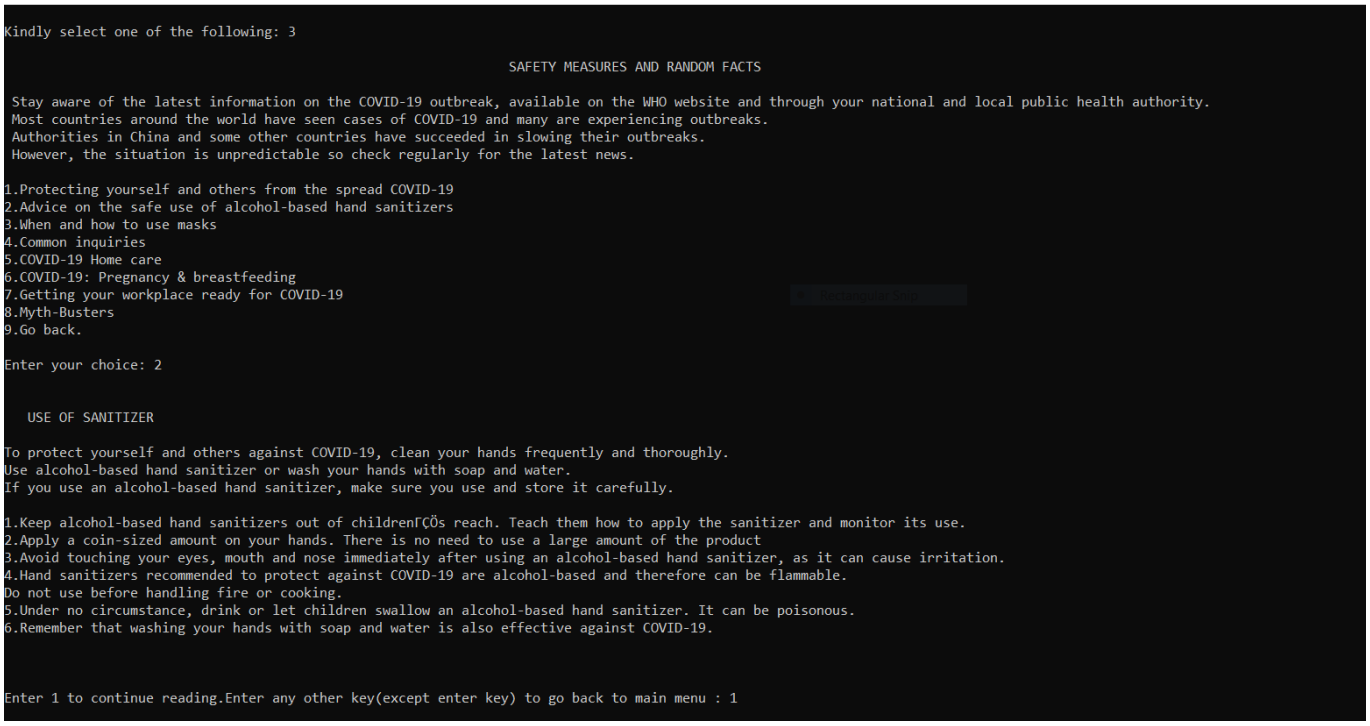
Output of presentCases()



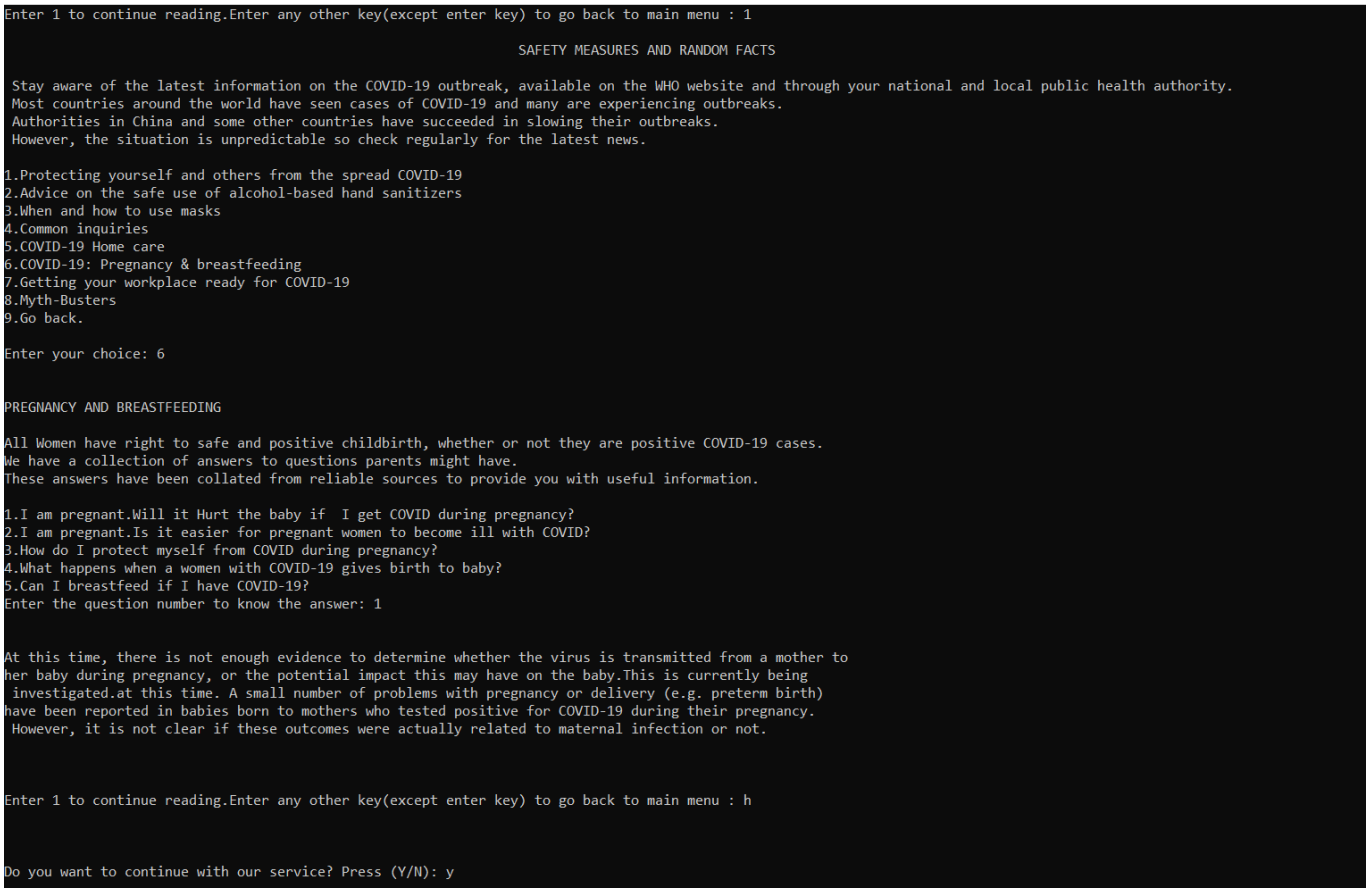
Output of selfAssessment()



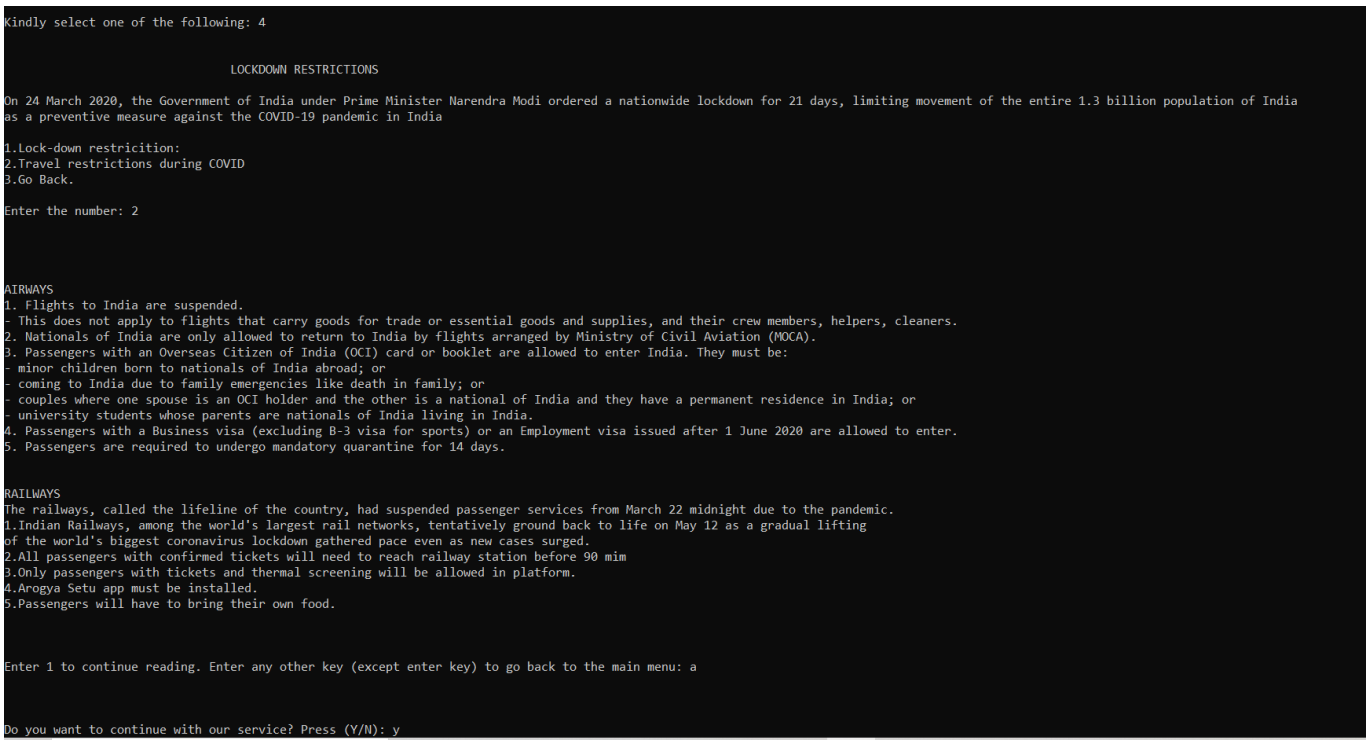
Output of previousAssessment()



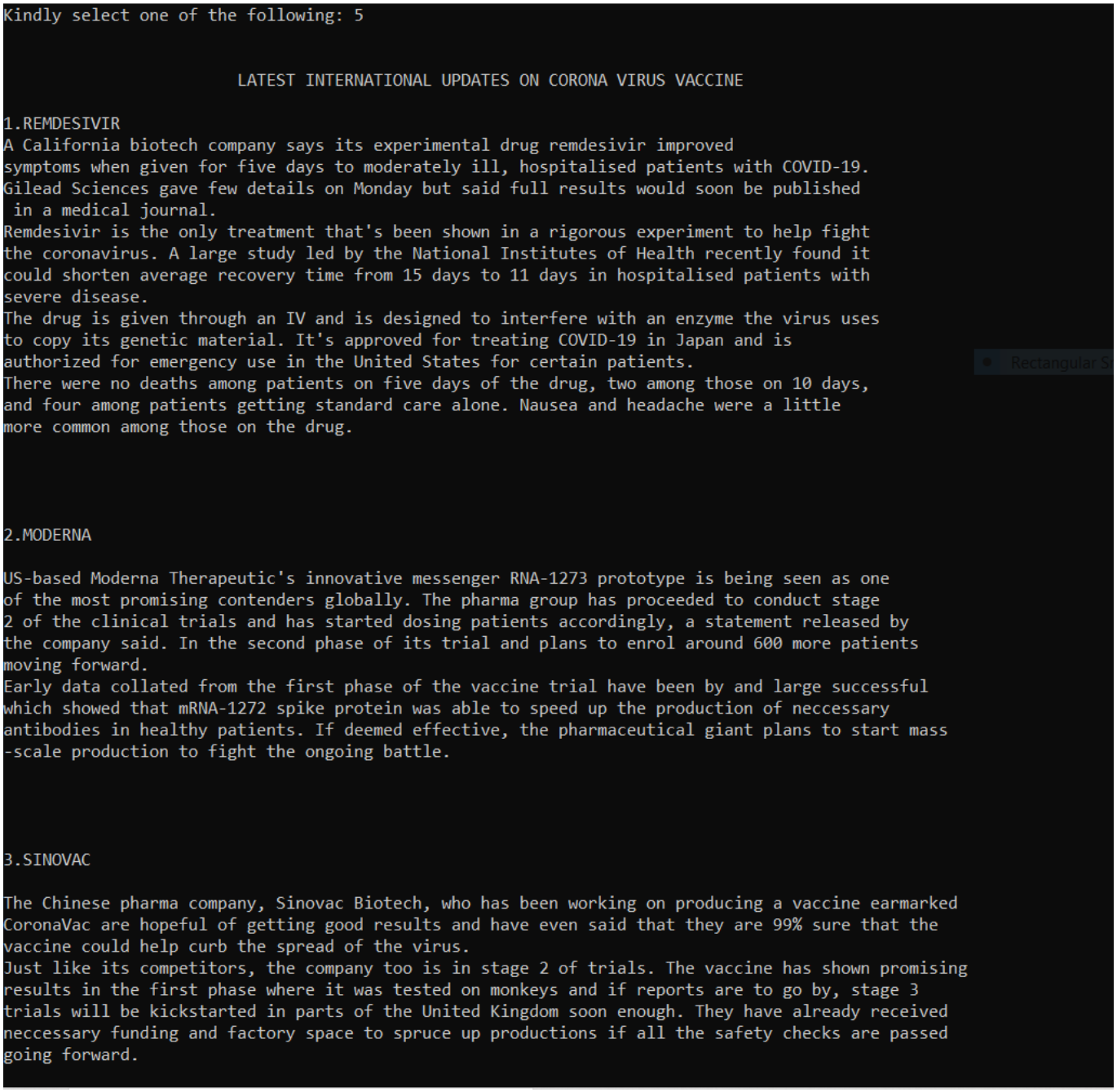
Output of safetyandRandom()



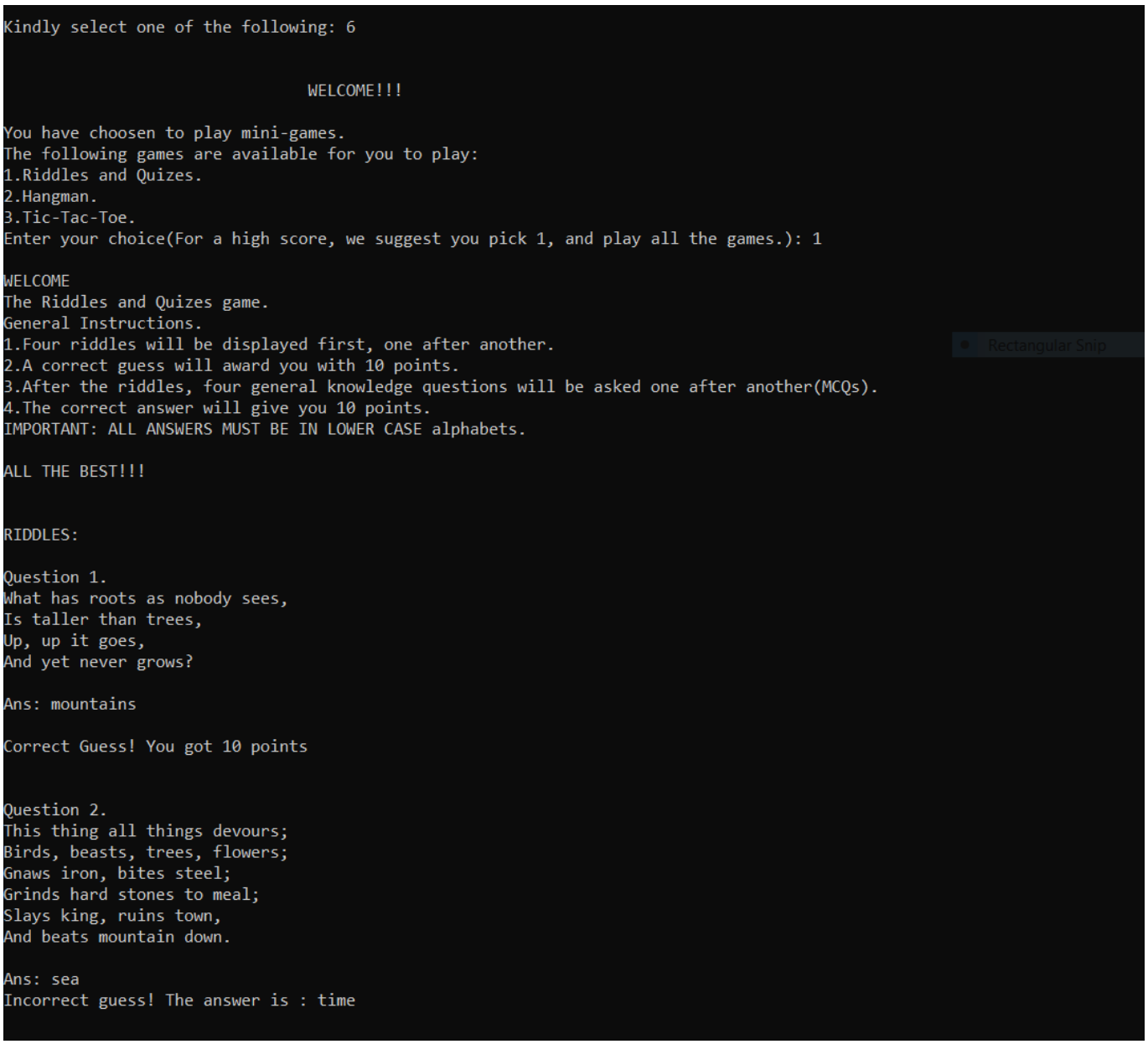
Output of safetyandRandom()



Output of lockdownRestrictions()



Output of internationalUpdates()



Output of riddles()

```
You have completed the riddles. Now moving on to GK quiz:

Question 1.
Who discovered penicillin?
a.Alexander Fleming.
b.Edward Jenner
c.Louis Pasteur
d.Robert Koch
Ans:a

Correct Guess! You got 10 points


Question 2.
The Indian to beat the computers in mathematical wizardry is
A.Ramanujam
B.Rina Panigrahi
C.Raja Ramanna
D.Shakunthala Devi
Ans:d

Correct Guess! You got 10 points


Question 3.
The members of Lok Sabha hold office for a term of
A.4 years
B.5 years
C.6 years
D.3 years
Ans:c

Incorrect guess! The answer is : B. 5 years

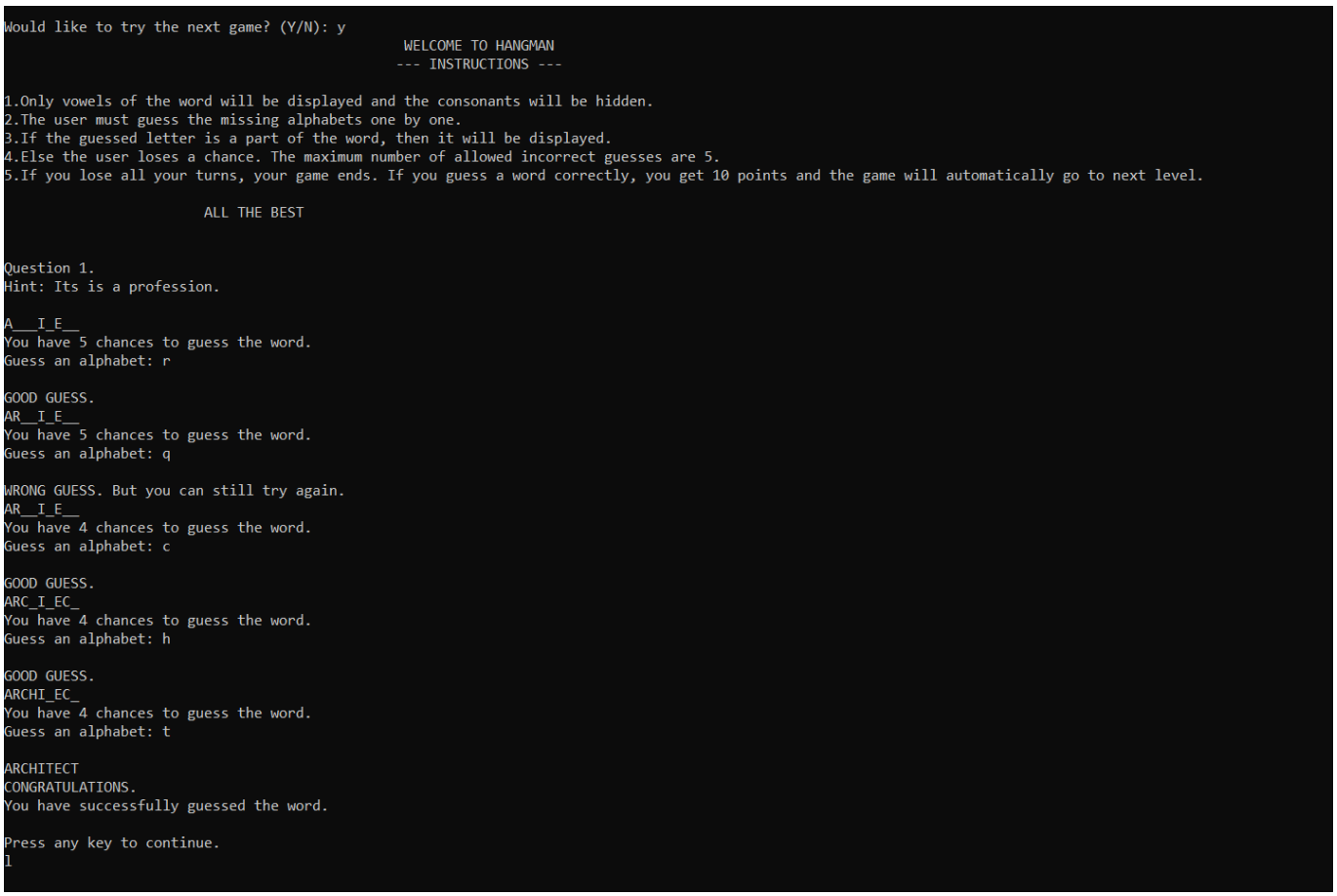

Question 4.
The Battle of Plassey was fought in:
A.1757
B.1782
C.1748
D.1764
Ans:c

Incorrect guess! The answer is : A. 1757

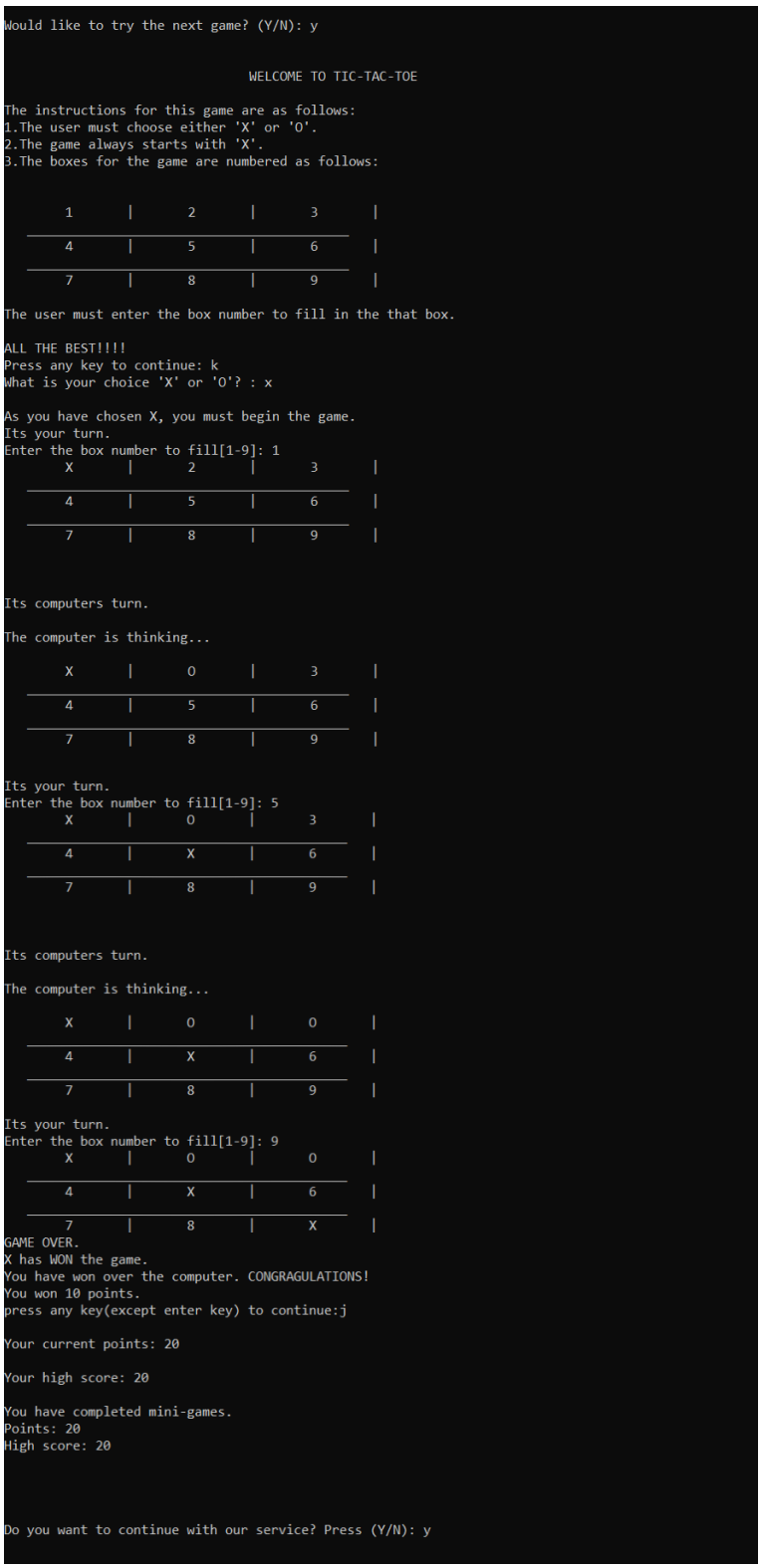


Your score: 50
Your high score: 50
```

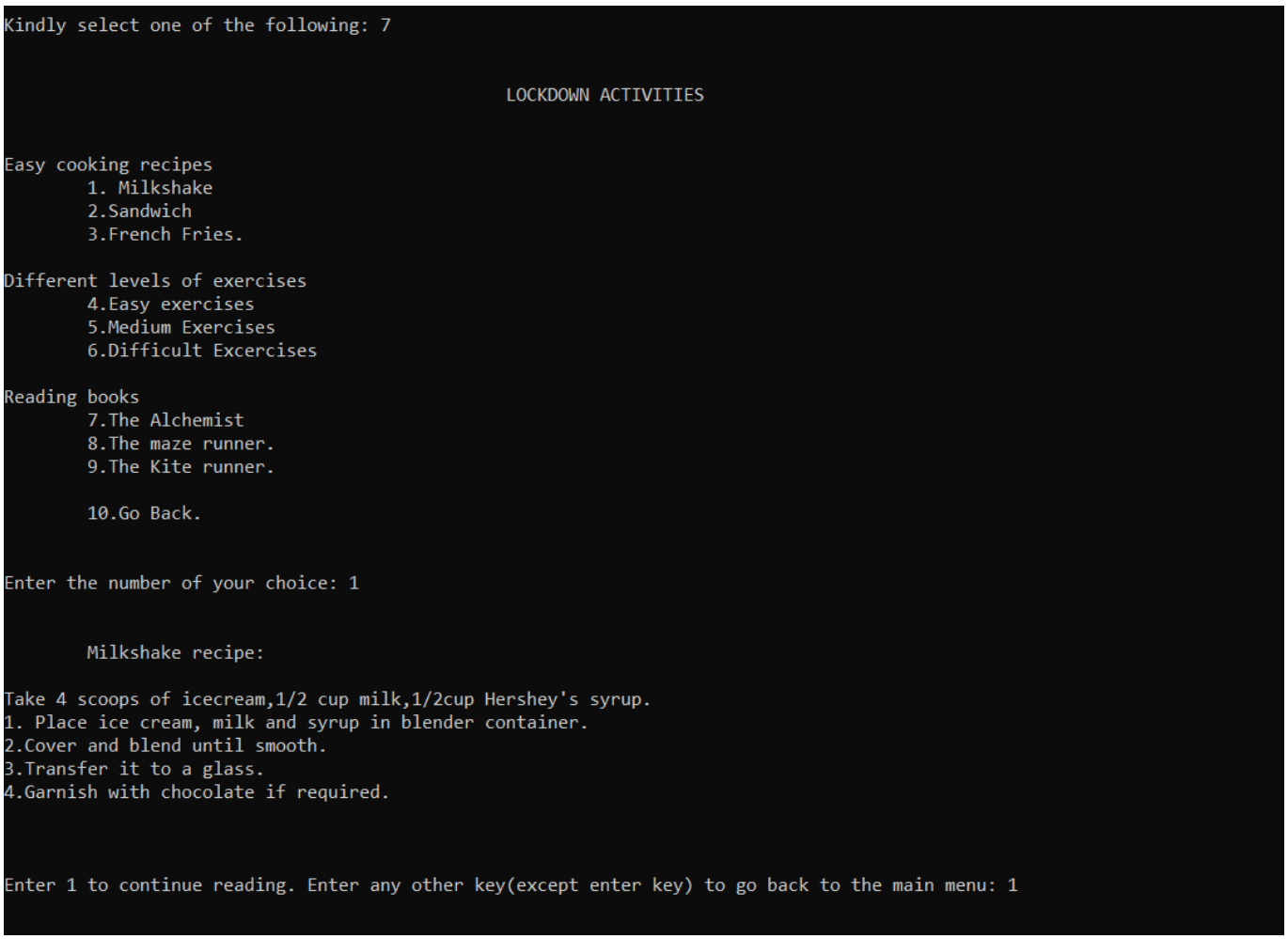
Output of gkQuiz()



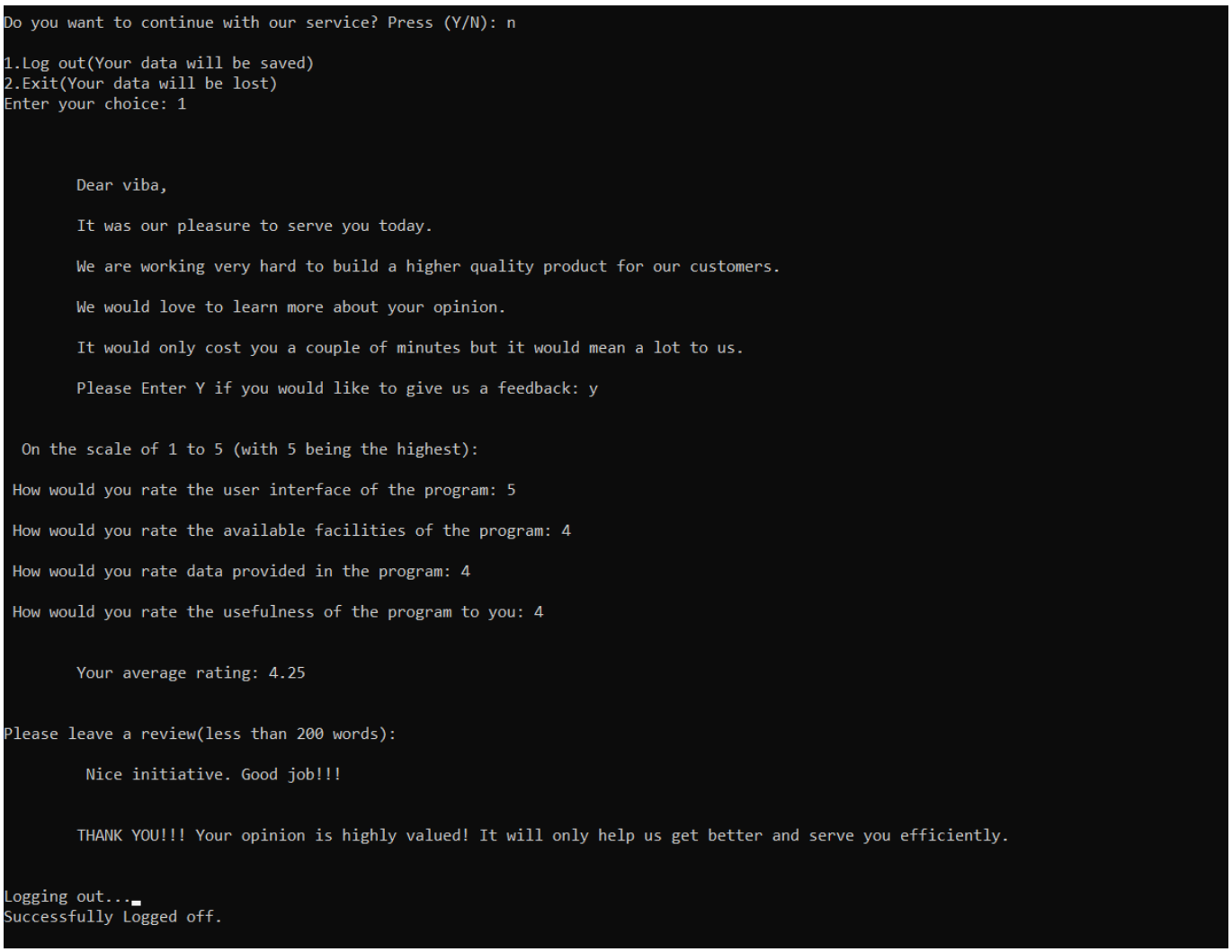
Output of hangman()



Output of tictactoe()

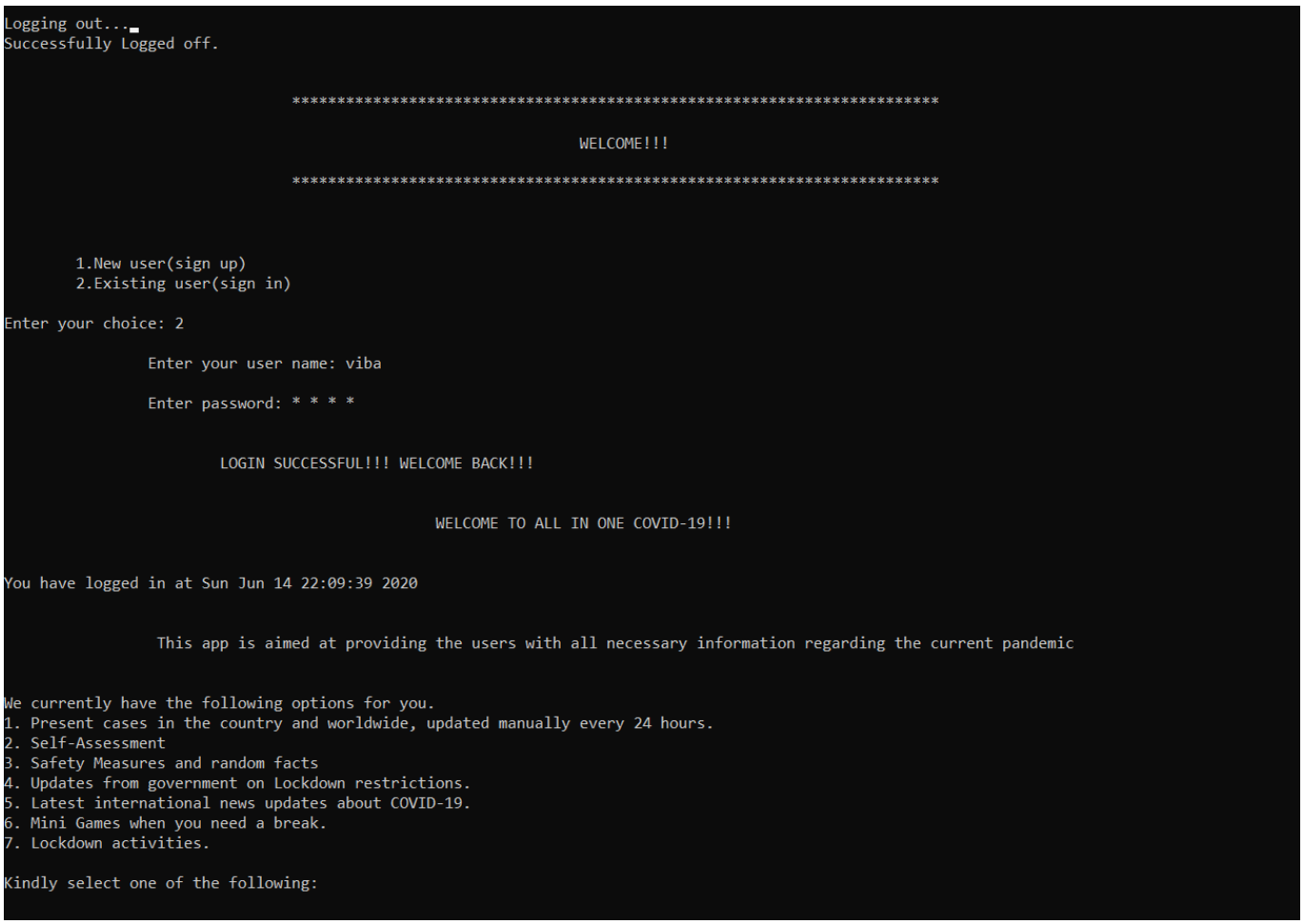


Output of lockdownActivities()



Output of rateandreview()

Output of re-logging



Output of re-logging

```
Do you want to continue with our service? Press (Y/N): n

1.Log out(Your data will be saved)
2.Exit(Your data will be lost)
Enter your choice: 2
If you exit, all your data will be lost.
ARE YOU SURE YOU WANT TO EXIT! (Y/N): y



        Dear viba,

        It was our pleasure to serve you today.

        We are working very hard to build a higher quality product for our customers.

        We would love to learn more about your opinion.

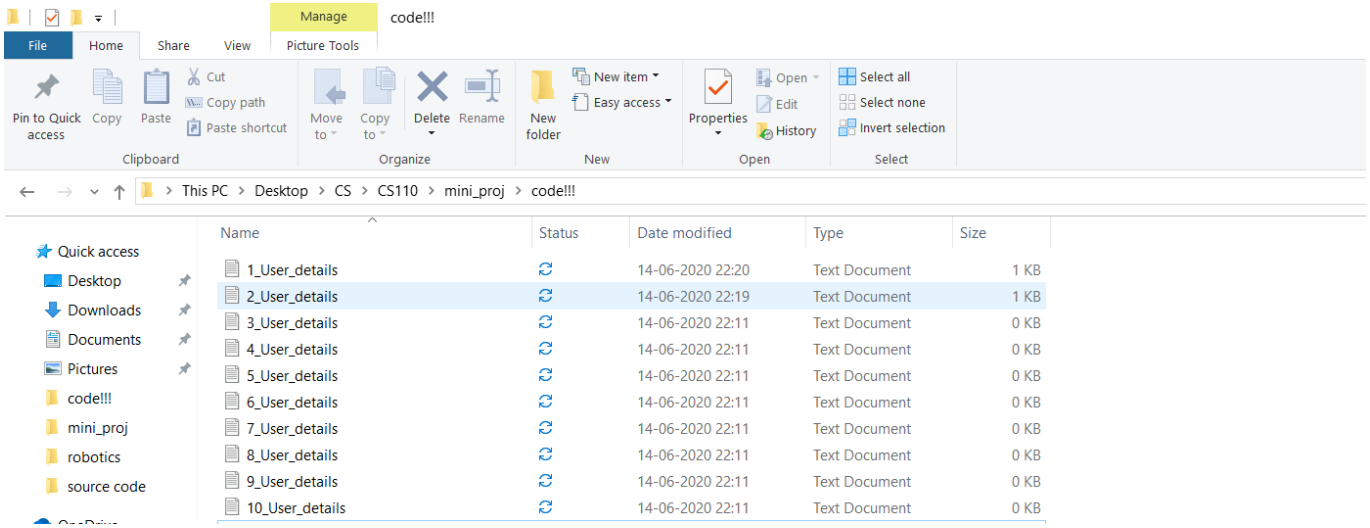
        It would only cost you a couple of minutes but it would mean a lot to us.

        Please Enter Y if you would like to give us a feedback: N

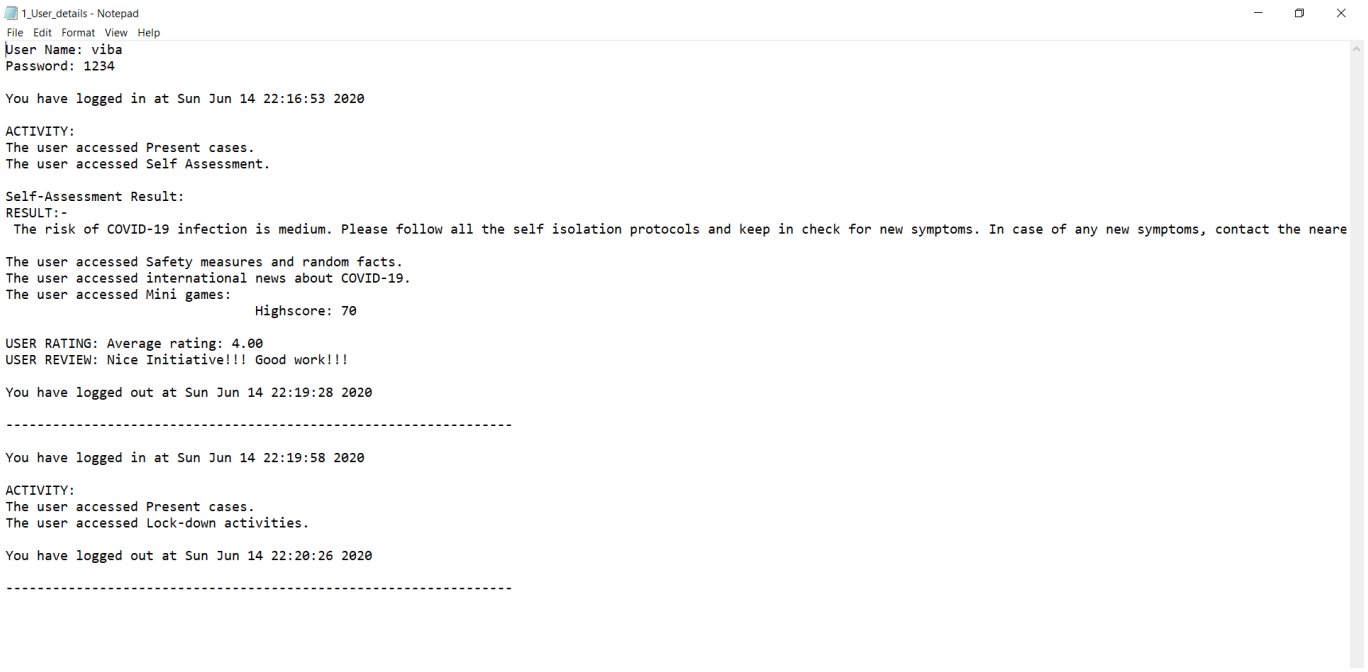
Thank you!!! It was a pleasure serving you!!
You exited at Sun Jun 14 22:10:38 2020

Process returned 0 (0x0)   execution time : 963.426 s
Press any key to continue.
```

Output of ratingandreview()



Output of files created



Output of file content

6 References:

1. http://www.tutorialspoint.com/c-standard-library/c-function-time.htm

2. https://stackoverflow.com/questions/2242901/create-array-of-pointers-to-files

3. https://www.tutorialspoint.com/c-standard-library/c-function-sprintf.htm

4. https://www.poftut.com/what-is-sleep-function-and-how-to-use-it-in-c-program/

PS:-Please find the instruction manual attached.

****** END ******