Memory Master

A Mini Project in C Language

Done By:

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Introduction:

The project “MEMORY MASTER” is a game which mainly focuses on Memorising few alphabets and numbers and reproduce them in a short span of time. This game helps to increase Memorising speed.

BASIC IDEA INVOLVED IN THE PROJECT

- The basic idea involved is the computer generates random numbers and some characters and the user must memorize them in each time limit and then type them in order.
- So in order to establish a set of random numbers we used the srand() and then generated random numbers. Stored them in an array
- Now we made our own timer function to make appear the random numbers for a limited time.
- After the time is completed, the numbers would disappear with the system(“clear”) function an in built one.
- Then the user is prompted to enter things in order. And scores would be displayed
- Then the user is asked if he want to continue or to return to main menu or to exit.

Program:

```
#include <stdio.h>
#include <stdlib.h>
#include <time.h>
#include<unistd.h>
#include<string.h>
struct student
{
   char name[50];
   int score;
};
int level_1();
int level_2();
int level_3();
void timmer(int);
int main()
{
    char name[20],key;int a,level,sum1=0,sum2=0,sum3=0;
```

```
    system("clear");

printf("**************************************************************
**********************************************************\n");
    printf("***********************************              WELCOME !!!!
*****************************************\n");
    printf("***********************************                 TO
*****************************************\n");
    printf("***********************************             MEMORY MASTER
*****************************************\n");

printf("**************************************************************
**********************************************************\n");

printf("**************************************************************
**********************************************************\n");
    printf("***********************************      A GAME TO BOOST YOUR
MEMORY       *****************************************\n");

printf("**************************************************************
**********************************************************\n");

printf("**************************************************************
**********************************************************\n");
    printf("                         \t\tPRESS Enter key\n");
    scanf("%c",&key);
    system("clear");
    struct student stud1[5], stud2[5];int i;
      FILE *fptr;
      fptr = fopen("file.txt","wb");
       for(i = 0; i < 1; ++i)
       {
          fflush(stdin);
          printf("Enter Your NAME :\n");
          gets(stud1[i].name);
       }
           fwrite(stud1, sizeof(stud1), 1, fptr);
           fclose(fptr);
```

```
Menu:
{
            printf("Levels are:\n");
    printf("\tEasy(1)\n");
    printf("\tMedium(2)\n");
    printf("\tHard(3)\n");
    printf("Enter the level You Want to Play\n");
    scanf("%d",&level);
}    if(level==1)
   { while(1)
 {          sum1=sum1 + level_1();
    printf("If You want to play again, Enter 1 \nIf You want to goto
Level Menu, Enter 2\nIF YOU WANT TO EXIT, ENTER 0\n");
    scanf("%d",&a);
    if (a==1)
    continue;
    else if (a==2)
     goto Menu;
    else
     break;
 }}
if(level==2)
   { while(1)
 {
  sum2=sum2 + level_2();
    printf("If You want to play again, Enter 1\nIf You want to goto
Level Menu, Enter 2\nIF YOU WANT TO EXIT, ENTER 0\n");
    scanf("%d",&a);
    if (a==1)
    continue;
    else if (a==2)
     goto Menu;
    else
     break;
```

```
 }}
    if(level==3)
   { while(1)
 {
  sum3=sum3 + level_3();
    printf("If You want to play again, Enter 1 \nIf You want to goto
Level Menu, Enter 2\nIF YOU WANT TO EXIT, ENTER 0\n");
    scanf("%d",&a);

    if (a==1)
    continue;
    else if (a==2)
     goto Menu;
    else
    break;
 }}
        printf("I HOPE YOU HAVE ENJOYED PLAYING THE GAME\n");
        printf("You Have Scored %d Points in EASY LEVEL\n",sum1);
        printf("You Have Scored %d Points in MEDIUM LEVEL\n",sum2);
        printf("You Have Scored %d Points in HARD LEVEL\n",sum3);
        printf("TOTAL POINTS SECURED IS %d\n",sum1+sum2+sum3);
        return 0;
}
int level_1()
{       int key;
          system("clear");
    printf("\t\tYou have choosen EASY Level\n");
    printf("Game Rules:\n");
    printf("\t*You have to memorise given ''order''\n\t*And You Will be
given 15 Seconds To Memorise Given Statements\n");
    printf("Enter 1 To Start\n");
    scanf("%d",&key);
    system("clear");
    printf("Your Time Begins Now\n");
```

```
  char a[5];
            int i,j=0;
           char b[5];
          time_t t;
             srand((unsigned) time(&t));
          char c[5],d[5];
   for(i = 0; i<5; i++)
    {
             int x;
                 a[i]=rand();
                 x=a[i]%25;
                 a[i]=x+65;
            printf("%c", a[i]);
   }  printf("\n");
      a[5]='\0';
      timmer(20);
   printf("Enter:\n");
       scanf("%s",b);
       j=strcmp(a,b);
    if (j==0)
                {
                          printf("You scored 5 points\n");
            return 5;
}       else
              {
                    printf("Better Luck Next Time\n");
          return 0;
                  }
}
int level_2()
{
    int key;
    system("clear");
```

```
    printf("\t\tYou have choosen MEDIUM Level\n");
    printf("Game Rules:\n");
    printf("\t*You have to memorise 5 two digit numbers in
''order''\n\t*And You Will be Given 15 Seconds to memorise");
    printf("\n\tReady??\n Enter 1 to Start\n");
    scanf("%d",&key);
    system("clear");
    printf("Your Time Starts Now\n");
          int a[3],b[3],j=0;
              time_t t;
             srand((unsigned) time(&t));
    int i;
    for(i = 0; i<5; i++)
    {   int r=89,x;
                a[i]=rand();
                x=a[i]%89;
                a[i]=x+10;
            printf("%d  ", a[i]);
    }
printf("\n");
    timmer(20);
        printf("Enter :\n");

        for(i=0;i<5;i++)
        scanf("%d",&b[i]);

    for( i=0;i<5;i++)
        {       if (a[i]==b[i])
               j++;

        }
    if (j==4)
        {       printf("You Scored 5 Points\n");
            return j+1;
```

```
        }
        else if (j==3)
        {       printf("Almost There\n");
            return j+1;
        }else if (j==2)
        {       printf("Came a Half-Way :)\n");
            return j+1;
        }
        else if (j==1)
        {       printf("Better Luck Next Time\n");
            return j+1;
        }
        else if (j==0)
        {       printf("Better Luck Next Time\n");
            return 0;
        }
}
int level_3()
{        int key;
          system("clear");
    printf("\t\tYou have choosen HARD Level\n");
    printf("Game Rules:\n");
    printf("\t*You have to memorise given ''order''\n\t*And You Will be
given 15 Seconds To Memorise Given Statements\n");
    printf("Enter 1 To Start\n");
    scanf("%d",&key);
    system("clear");
    printf("Your Time Begins Now\n");
  char a[5];
           int j=0;
          char b[5];
         time_t t;
            srand((unsigned) time(&t));
         char c[5],d[5];
```

```
            int i;
   for( i = 0; i<5; i++)
    {
            int x;
                a[i]=rand();
                x=a[i]%25;
                a[i]=x+65;
           printf("%c", a[i]);
   }   printf("\n");
      for(i = 0; i<5; i++)
    {   int x;
                c[i]=rand();
                x=c[i]%25;
                c[i]=x+97;
           printf("%c", c[i]);
   }
     a[5]='\0'; c[5]='\0';
printf("\n");
     timmer(20);
        printf("\nEnter :\n");
        scanf("%s%s",b,d);
         j=strcmp(a,b);
      int k=strcmp(c,d);
      i=j+k;
    if (i==0)
        {
                        printf("You scored 5 points\n");
           return 5;
}       else
             {
                    printf("Better Luck Next Time\n");
          return 0;
                  }
```

```
}
void timmer(int s)
{ while(s!=0)
    {   sleep(1);
         if (s==5)
            system("clear");
        if(s<=5)
                printf("
%d Seconds left\n",s);
       if (s<=6)
          printf("\a");
        s=s-1;
   }
}
```

What we have learned while doing this project:

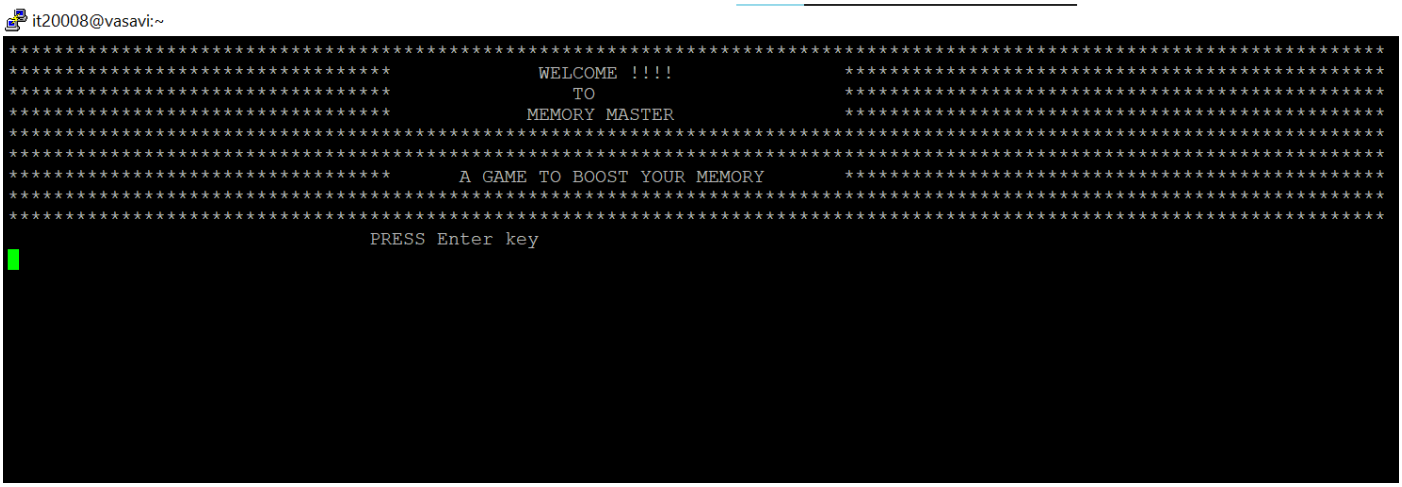
From this assignment, I have learnt to implement a few C concepts in the projects such as functions, else if statements and goto statements, arrays, pointers, structures and files in the program.

I have learnt how to apply my skills at real time work and also how to deal with the tough errors and buffer overflows.

I also learned how to use different functions like (sleep() ,system("clear"); ,etc.)

Testcase:

INTRODUCTION:



LEVEL MENU:

it20008@vasavi:~

```
Enter Your NAME :
Chandra Kiran
Levels are:
        Easy(1)
        Medium(2)
        Hard(3)
Enter the level You Want to Play
```

EASY LEVEL:

it20008@vasavi:~

```
                You have choosen EASY Level
Game Rules:
        *You have to memorise given ''order''
        *And You Will be given 15 Seconds To Memorise Given Statements
Enter 1 To Start
```

it20008@vasavi:~

```
Your Time Begins Now
T7D85
```

it20008@vasavi:~

```
                                                                    5 Seconds left
                                                                    4 Seconds left
                                                                    3 Seconds left
                                                                    2 Seconds left
                                                                    1 Seconds left
Enter:
T7D85
You scored 5 points
If You want to play again, Enter 1
If You want to goto Level Menu, Enter 2
IF YOU WANT TO EXIT, ENTER 0
```

MEDIUM LEVEL:

it20008@vasavi:~

```
                You have choosen MEDIUM Level
Game Rules:
        *You have to memorise 5 two digit numbers in ''order''
        *And You Will be Given 15 Seconds to memorise
        Ready??
 Enter 1 to Start
```

it20008@vasavi:~

```
Your Time Starts Now
68  72  58  52  59
```

```
it20008@vasavi:~
                                                                    5 Seconds left
                                                                    4 Seconds left
                                                                    3 Seconds left
                                                                    2 Seconds left
                                                                    1 Seconds left
Enter :
68
72
58
52
22
Almost There
If You want to play again, Enter 1
If You want to goto Level Menu, Enter 2
IF YOU WANT TO EXIT, ENTER 0
```

HARD LEVEL:

```
it20008@vasavi:~
                You have choosen HARD Level
Game Rules:
        *You have to memorise given ''order''
        *And You Will be given 15 Seconds To Memorise Given Statements
Enter 1 To Start
```

```
it20008@vasavi:~
Your Time Begins Now
INJIU
j_`hs
```

```
it20008@vasavi:~
                                                                    5 Seconds left
                                                                    4 Seconds left
                                                                    3 Seconds left
                                                                    2 Seconds left
                                                                    1 Seconds left
Enter :
INJIU
j_'hs
Better Luck Next Time
If You want to play again, Enter 1
If You want to goto Level Menu, Enter 2
IF YOU WANT TO EXIT, ENTER 0
```

FINAL EXIT:

```
0
I HOPE YOU HAVE ENJOYED PLAYING THE GAME
You Have Scored 10 Points in EASY LEVEL
You Have Scored 4 Points in MEDIUM LEVEL
You Have Scored 0 Points in HARD LEVEL
TOTAL POINTS SECURED IS 14
[it20008@vasavi ~]$
```

Description:

The functions that we declared and used are :

- **int level_1()**
- **int level_2()**
- **int level_3()**

Each of them giving the description about the game rules & level that user choose to play. The main game also gets executed in these functions only and scores are generated.

Another important function that I declared and used is **void timer(int)** - this user declared function is used in the vision of making a timer which would count the time and then do the task.

The main objective of using this is to make use of a simple timer

Important pre-defined function used in the program is **srand()** – this is used in the idea of generating the random number (completely random each time).

And Another Important function is **system("clear")** – this is used to clear the output screen and can be used in Linux and Windows.

Conclusion:

We would like to thank our subject teacher DRL Prasanna ma'am for giving us this kind of opportunity to apply our skills on our own & also helping us with the concepts.

We would like to conclude that We have enjoyed and learned new things while making this project.

Future scope:

Scope of our project:

This project has a wide scope in future it can be used to make android game or also this idea can be used as a one-time password generator and many more since the numbers would be randomly generated. To increase more complexity of game we can use a timer where user has to type the digits within the given time.

SCOPE OF C LANGUAGE.

C language is one of the most popular language in the world but looking the experience programmer can be complicate. C has been used to write a huge range of software, connecting operating systems, device drivers, financial program, 3d games and other GUI programming algorithms. Absolute coding range of modern projects that C has been used for means you want to search a developer that connect with your specific issue.

Even after several decades of its introduction, C still continues to reign the industries because of its salient features. Although Python, Java, and C++ have outpowered C in terms of demand in the market, C continues to be the base requirement that every programmer is expected to be familiar with.