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```
#include <stdio.h>
#include <stdlib.h>
#include <time.h>
#include <string.h>
#include "foc_fa22.h"

void StartGuessTheNumberGame();
void StartHangManGame();
int main ()
{

      int y; // the y is for the if function
      char name[20]; // for the name input
      int userinput=0; // for the int main if statment

      printf("Enter you name : ");
      scanf("%s", name);
      printf("Hello %s!!\n", name);
      printf("Please enter the number of the game you wish to play, or
choose exit.\n");

      int quit=1;  // this is for the while loop

      while(quit)
      {
            printf("1.Guess The Number.\n2.HangMan.\n3.Exit.\n");
            scanf("%d", &y);

            if(y==1) // the 1st if is for the main idea of the game
            {
                        printf("Guess the number has started!\n");

                     printf("Enter a number between 1 & 10000: ");

                   scanf("%d", &userinput);

                  if(userinput<=10000 && userinput>=1) // the user must
enter a number between 1 and 10000, other than that its Invalid choice
will pop out.
                  {
                        StartGuessTheNumberGame();  // when the user
enters a number between 1 and 10000 the funtion will be called
                  }

                  else
                  {
                        printf("Invalid choice." );
                        break;
                  }


            }

            else if(y==2)
```

```
            {
                  StartHangManGame();
            }

            else if(y==3)
            {
                  printf("Exit game, Have a great day!!\n");
                  break;
            }

            else
            {
                  printf("Invalid choice! Try again.\n");
            }
      }


return 0;
}

void StartGuessTheNumberGame()
{
      int high=10000,low=1,count=1,userinput=0;

      while (userinput!=1) // the while loop will keep running until the
user enters 1, also it will kepp running the loop for the if function
      {

       int mid=(high+low)/2; // here is the binary search, cause the
binary search will always strat from the half of the highest number

       printf("my guess is :%d\n", mid); // here is the computer guess,
and its 5000.

       printf("Please choose one of the following options:\n1.My guess is
correct\n2.The secret number is larger than %d\n3.The secret number is
smaller than %d\n",mid, mid);
       scanf("%d", &userinput);

            if(userinput == 1)
            {
                  printf("CONGRATS The secret number is %d\nYou have
tried: %d times\n", mid, count);  // the mid is for the binary search,
and the count is for the computer number of tries.
                  break;
            }

            else if (userinput == 2)
            {
                  low = mid + 1;
            }
            else if (userinput == 3) // the both else if are for the low,
high and the mid, just to tell the computer where exactly to find the
number.
```

```
            {
                  high = mid - 1;
            }

            else
            {
                  printf("Invalid choice!"); // if the user enters a
number other than 1, 2 ,and 3, the invalid choice will pop up
            }

            if (userinput!=1)
            {
                  count++; // how to find the number of guesses? it simply
will count 1 everytime the guess is wrong, until the user enters 1.
            }
         }

         int userinput2=0; // for the while loop
         int imagearr[150][150]; // for the 2d diagram

         while (userinput2!=1) // it will keeps running until the user
enters 1
         {

            for (int i=0 ; i<150 ; i++) // the i is for the rows
            {
                  for (int j=0 ; j<150 ; j++) // the j here is for the
columns
                  {
                        imagearr[i][j]=255; // 255 is the number fo the
color
                        if (i > 150-(count*10) && (j > 65 && j< 85)) //
*10 is for the black box that is going to rize everytime the computer
guess wrong
                        imagearr[i][j]=0; // zero is for the color
                  }
            }

             showArray(150,150,imagearr); // and this is to draw the
image
             break; // the break here to end the loop for the image, so
the while loop will go back to the main menu.

         }

}

void StartHangManGame()
{
      FILE*yk; // to open the files and yk is the pointer
      char str[50]=" ";
      int randy;
      char str2[50]=" "; // i changes it to zero because the string was
giving me trash
```

```
      char useroption;
      int h;
      int exit=0;
      int r=1;
      int x=1; // for the while loop
      int try=5;


      while(x)
     {
      printf("choose one of the categories:
\n1.Food\n2.Colors\n3.Names\n4.Objects\n");
      scanf("%d", &h); // the scanf (h) here is for the switch function

      switch (h) // here where i open the files
      {
      case 1:
      yk=fopen("Food.txt", "r");
      x=0;
      break;

      case 2:
      yk=fopen("Colors.txt", "r");
      x=0;
      break;

      case 3:
      yk=fopen("Names.txt", "r");
      x=0;
      break;

      case 4:
      yk=fopen("Objects.txt", "r");
      x=0;
      break;

      default:
        printf("Invalid Choice\n"); // here if the user enters a number
other than 1, 2, 3, and 4, the invalid choice will pop up, and the main
choicses will start from the begining cause of the while loop
        break;
       }

      }

       srand(time(NULL));
       randy = rand () % 15; // this rand will give me a random number
between 0 and 14


       for(int i=0 ; i<randy ; i++) // this loop is just to take a random
word
       {
            fscanf(yk ,"%s", str); // to take a random word from the file
```

```
       }

            fclose(yk); // to close the files


           int length=strlen(str); //to print the length of the word


       for(int j=0 ; j<length ; j++) // assign for every index for the
dash
       {
            str2[j]='-'; // to print daches instead of the word itself

       }



       while  (r==1) // this while loop will continue running until the
user finds the word, or exceed the try limit.

       {
            printf("The word so far is\n");

            for (int o=0 ; o<length ; o++) // this loop is to print the
word after the user enters a letter and to replace it from dashes to a
letters
            {
                  printf("%c", str2[o]); // to print the indexes in the
string
            }

            printf("\n"); // to print new line


            printf("you have %d attemps : ", try);
            scanf(" %c", &useroption);



            for (int i=0 ; i<length ; i++) // this loop is to check if
the user enters the right letter
            {

                  if (useroption==str[i]) // here it will check if the
user enters the right letter, if the letter is correct the printf
"correct keep going" will pop up, and the for loop will keep going
                  {
                        str2[i]=useroption;
                        printf("Correct!, Keep going\n");
                        exit=1;
                  }

            }
```

```
                if (exit==0) // because it kept looping the printf so I
declared the function exit to stop the loop,
                {
                      printf("Not quit! Try again!\n");
                      try--;
                }

                if(strcmp(str,str2)==0) // this if is to check if the
user got all the letters correct, it will break and go out of the loop,
then the congrats message will pop up.
                {
                      break;
                }

                if(try==0) // this will check the number of tries.
                {
                      break;
                }


           }


                if(strcmp(str,str2)==0) // I compared the 2 strings that
I declared, so this will check if the user found the word. string
comparison, if the user found the word the congarts message will pop up,
and then it will return to the main menu
                {
                      printf("CONGRATS!! You have found the word!\n");

                }

                      else
                      {
                            printf("Hard luck! You were not able to find
the word :( \n"); // if the user didnt find the word, this message will
pop up

                      }
}
```

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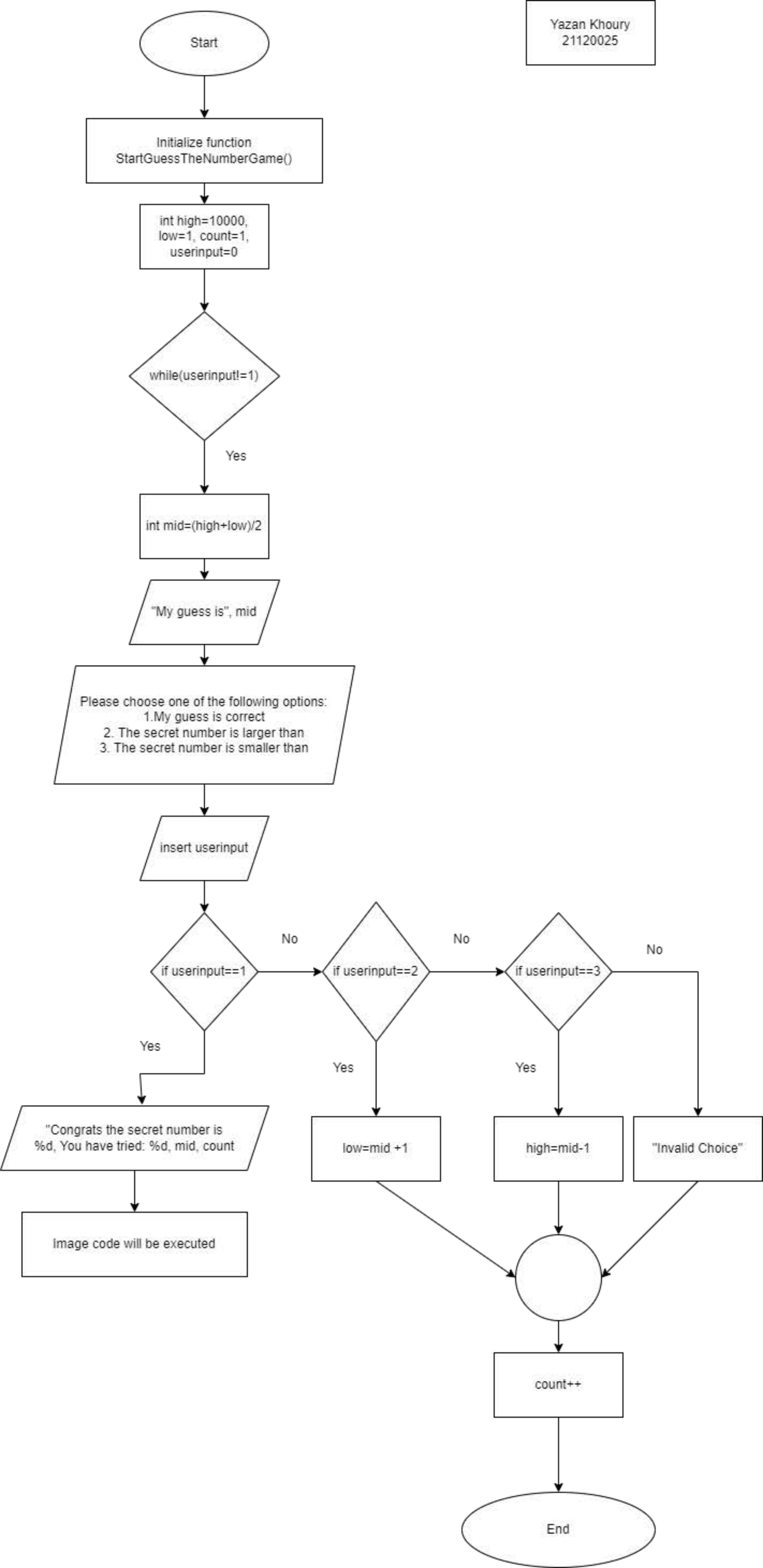

Start

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int y, int userinput=0
int quit=1

while(quit)=1

Enter Your Name

Please enter the number of the game that you wish to play

if y==1

No

if y==2

No

if y==3

No

Invalid Choice!
Try Again.

Yes

Guess the number
game has started

Yes

StartHangMan()

Exit game, Have a
great day

if userinput<=10000
&&
userinput>=1

No

Invalid Choice

Yes

StartGuessTheNumberGame()

if quit==1

No

End

Yes

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Sender Connection Channel receiver

Ethernet (LAN)

The devices A and B are connected using an Ethernet protocol, which is a serial protocol. Data communication channel is LAN able. The data transition is a full duplex data transition mode. This means that the sender and the receiver can share data at the time.