MINI PROJECT-COWS AND BULLS GAME

AIM:

To implement the game cows and bulls by using a class and oops concepts with the help of c++ programming.

OBJECTIVE:

To learn to implement the game cows and bulls by using a class and oops concepts with the help of c++ programming.

SOFTWARE REQUIRED:

Operating System-Windows XP

Application System-Turbo CPP

DESCRIPTION:

Cows and Bulls game or Bulls and Cows game is an old code-breaking mind game for two or more people. In this game one person has to think of a four letter word and the other player(s) need to guess the word. For each guess the person who thought of the word would specify the number of cows and number of bulls. The number of cows indicate the number of letters which match with the required word and the guessed word but those letters are in different positions. The bulls indicate the number of letters which match and are in the exact same position as that of the required word. Therefore the game ends when the guessing person gets four bulls. Main rule of the game is that the word should not have repeating letters and the word cannot be a proper noun.

The above game has been implemented in c++ programming language in this mini project. In this implementation a class has been created with data members –two character strings and four integers. In the main function an array of the class is declared and the word to be guessed is read from one of the players by the read function. In this program there are separate member functions defined to calculate the number of cows and bulls. Then the words that are guessed are read in from the other player(s) one by one until the correct word is obtained.

The implementation of this game has helped in understanding the purpose of classes and its member functions and also helped in enhancing the logical way of thinking.

ALGORITHM:

Step1: Start

Step2: Declare a class with data members of two character strings, word and w2 and four integers, c ,b ,cntl , cntb.

Step3: Print “WELCOME TO COWS AND BULLS GAME”.

Step4: Repeat steps 4.1 to until ch<=2.

4.1: Print choices.

4.2: Read in the choices.

4.3: If ch is 1 or 2.

4.3.1: Call the read function.

4.3.1.1: Print the rules of the game.

4.3.1.2: Read in the word in word string

4.3.1.3: If any of the letters of the word repeats.

4.3.1.3.1: Print“Letters should not repeat and start again”,

4.3.2: If the value returned by the read function is not equal to 1 then call the check function.

4.3.2.1: Read in the first guessed word in w2.

4.3.2.2: If both w2 and word are same.

4.3.2.2.1: Print that the word has been found.

4.3.2.3: When the position of the letters are different call the cows function.

4.3.2.3.1: If the letters are same then increment cntl and return cntl.

4.3.2.4: When the position of then letter are same call the bulls function.

4.3.2.4.1: If the letters are same then increment cntb and return cntb.

4.3.2.5: Print the number of cows and bulls.

4.3.2.6: Read in the next guessed word.

Step5: Stop

PROGRAM:

#include<iostream.h>

#include<conio.h>

#include<stdio.h>

#include<string.h>

#include<ctype.h>

#define SIZE 200

class cbs

{

char word[5];

char w2[5];

int cntl;

int cntb;

int c;

int b;

public:

cbs()

{

strcpy(word,'\0');

strcpy(w2,'\0');

cntl=0;

cntb=0;

c=0;

b=0;

}

int read()

{

cout<<"Player who has thought the word please type it\n";

cout<<"The word should be only a 4-lettered word and letters should not repeat\n";

cout<<"The word should not be a proper noun i.e. it canot be a name or place\n";

for(int z=0;z<4;z++)

{

word[z]=getch();

printf("\*");

}

word[4]='\0';

for(int k=0;k<4;k++)

{

for(int l=k+1;l<4;l++)

{

if(word[k]==word[l])

{

cout<<"\nLETTERS SHOULD NOT REPEAT\n";

cout<<"START AGAIN\n";

return 1;

}

}

}

}

int cows(char a,char b)

{

if(a==b)

cntl++;

return cntl;

}

int bulls(char c,char d)

{

if(c==d)

cntb++;

return cntb;

}

void check()

{

cout<<"\nplease type your first word\n";

gets(w2);

while(strlen(w2)==4)

{

if(strcmpi(word,w2)==0)

{

cout<<"Superb you have found the word!!!!!!\n";

return;

}

else

for(int i=0;i<4;i++)

{

for(int j=0;j<4;j++)

{

if(i!=j)

{

c=cows(word[i],w2[j]);

}

if(i==j)

{

b=bulls(word[i],w2[j]);

}

}

}

cout<<"No. of bulls "<<b<<" and no.of cows "<<c<<endl;

cntl=0;

cntb=0;

c=0;

b=0;

cout<<"Enter the next word\n";

gets(w2);

}

}

};

void main()

{

clrscr();

cbs c[SIZE];

int ch;

int v;

static int i=0;

cout<<"WELCOME TO\nCOWS AND BULLS GAME\n";

cout<<"1.START\n";

do

{

cout<<"2.PLAY ANOTHER GAME\n3.STOP\n";

cout<<"Enter your choice\n";

cin>>ch;

if(ch==1)

{

v=c[i].read();

if(v!=1)

c[i].check();

i++;

}

if(ch==2)

{

v=c[i].read();

if(v!=1)

c[i].check();

i++;

}

}while(ch<=2);

getch();

}

OUTPUT:









