**Question 01:**

#include <stdio.h>

int main()

{

int date, year, month, month\_for\_calc, digit\_3\_4, digit\_1\_2, final\_value, final\_day,temp;

printf("Enter the date:\n");

scanf("%d", &date);

printf("Enter the month:\nSuch as 1 for Jan, 2 for Feb and so on...\n");

scanf("%d", &month);

printf("Enter the year:\n");

scanf("%d", &year);

switch (month)

{

case 1:month\_for\_calc = 11;

break;

case 2:month\_for\_calc = 12;

break;

case 3:month\_for\_calc = 1;

break;

case 4:month\_for\_calc = 2;

break;

case 5:month\_for\_calc = 3;

break;

case 6:month\_for\_calc = 4;

break;

case 7:month\_for\_calc = 5;

break;

case 8:month\_for\_calc = 6;

break;

case 9:month\_for\_calc = 7;

break;

case 10:month\_for\_calc = 8;

break;

case 11:month\_for\_calc = 9;

break;

case 12:month\_for\_calc = 10;

break;

}

if (month\_for\_calc == 11 || month\_for\_calc == 12){

year--;

}

digit\_3\_4 = year % 100; digit\_1\_2 = year / 100;

final\_value = date + ((((13 \* month\_for\_calc) - 1) / 5) + digit\_3\_4 + (digit\_3\_4 / 4) + (digit\_1\_2 / 4) - 2 \* digit\_1\_2);

if (final\_value > 0){

final\_day = final\_value % 7;

}

else if(final\_value<0){

temp=final\_value%7;

final\_day=7+temp;

}

switch (final\_day)

{

case 0:printf("The day on the given date is Sunday\n");

break;

case 1:printf("The day on the given date is Monday\n");

break;

case 2:printf("The day on the given date is Tuesday\n");

break;

case 3:printf("The day on the given date is Wednesday\n");

break;

case 4:printf("The day on the given date is Thursday\n");

break;

case 5:printf("The day on the given date is Friday\n");

break;

case 6:printf("The day on the given date is Saturday\n");

break;

}

}

**Question 02:**

#include <stdio.h>

#include <conio.h>

#include <string.h>

void func\_encrypt(char array[], int key)

{

int i;

for (i = 0; array[i] != '\0'; i++)

{if (array[i] >= 'A' && array[i] <= 'Z'){

array[i] += 32;

}

else if (array[i] >= 'a' && array[i] <= 'z'){

array[i] -= 32;

}

}

for (i = 0; array[i] != '\0'; i++){

if (array[i] >= 'a' && array[i] <= 'z'){

array[i] += key;

if (array[i] > 'z'){

array[i] = array[i] - 'z' + 'a' - 1;

}

}

if (array[i] >= 'A' && array[i] <= 'Z'){

array[i] += key;

if (array[i] > 'Z'){

array[i] = array[i] - 'Z' + 'A' - 1;

}

}

}

puts(array);

}

void func\_decrypt(char array[], int key)

{ int i;

for (i = 0; array[i] != '\0'; i++){

if (array[i] >= 'a' && array[i] <= 'z'){

array[i] -= key;

if (array[i] < 'a'){

array[i] = array[i] + 'z' - 'a' + 1;

}

}

if (array[i] >= 'A' && array[i] <= 'Z'){

array[i] -= key;

if (array[i] < 'A'){

array[i] = array[i] + 'Z' - 'A' + 1;

}

}

}

for (i = 0; array[i] != '\0'; i++){

if (array[i] >= 'A' && array[i] <= 'Z'){

array[i] += 32;

}

else if (array[i] >= 'a' && array[i] <= 'z'){

array[i] -= 32;

}

}

puts(array);

}

int main()

{

int i, key;

char array[1000];

printf("Enter the string you want to encrypt\n");

fflush(stdin);

gets(array);

printf("\nEnter the key\n");

scanf("%d", &key);

printf("\nAfter Encryption the array becomes:\n");

func\_encrypt(array, key);

printf("\nAfter decryption the array becomes:\n");

func\_decrypt(array, key);

}

**Question 03:**

#include <stdio.h>

#include <conio.h>

#include <stdlib.h>

#include <string.h>

struct Player\_Data{

char Player\_Name[50];

int age;

}Player[2];

char current\_player[50],box\_no[10] = {'0', '1', '2', '3', '4', '5', '6', '7', '8', '9'},line[50];

int func\_winner\_check()

{

if (box\_no[1] == box\_no[2] && box\_no[2] == box\_no[3] && box\_no[1] == box\_no[3])return 1;

else if (box\_no[4] == box\_no[5] && box\_no[5] == box\_no[6] && box\_no[4] == box\_no[6] )return 1;

else if (box\_no[7] == box\_no[8] && box\_no[8] == box\_no[9] && box\_no[7] == box\_no[9] )return 1;

else if (box\_no[1] == box\_no[4] && box\_no[4] == box\_no[7] && box\_no[1] == box\_no[7] )return 1;

else if (box\_no[2] == box\_no[5] && box\_no[5] == box\_no[8] && box\_no[2] == box\_no[8] )return 1;

else if (box\_no[3] == box\_no[6] && box\_no[6] == box\_no[9] && box\_no[3] == box\_no[9] )return 1;

else if (box\_no[1] == box\_no[5] && box\_no[5] == box\_no[9] && box\_no[1] == box\_no[9] )return 1;

else if (box\_no[3] == box\_no[5] && box\_no[5] == box\_no[7] && box\_no[3] == box\_no[7] )return 1;

else if (box\_no[1] != '1' && box\_no[2] != '2' && box\_no[3] != '3' &&

box\_no[4] != '4' && box\_no[5] != '5' && box\_no[6] != '6' &&

box\_no[7] != '7' && box\_no[8] != '8' && box\_no[9] != '9')return 0;

else return -1;

}

void func\_board\_printer(){

system("cls");

printf("\n\n\t\tWelcome!!!!!!\n");

printf("\t\tTic Tac Toe Developed By Bilal Ahmed Khan\n\n");

printf("\n\nMatch between %s and %s \n\n",Player[0].Player\_Name,Player[1].Player\_Name);

printf("%s(+) - %s(-)\n\n\n",Player[0].Player\_Name,Player[1].Player\_Name);

printf(" | | \n");

printf(" %c | %c | %c \n", box\_no[1], box\_no[2], box\_no[3]);

printf("\_\_\_\_\_\_|\_\_\_\_\_\_|\_\_\_\_\_\n");

printf(" | | \n");

printf(" %c | %c | %c \n", box\_no[4], box\_no[5], box\_no[6]);

printf("\_\_\_\_\_\_|\_\_\_\_\_\_|\_\_\_\_\_\n");

printf(" | | \n");

printf(" %c | %c | %c \n", box\_no[7], box\_no[8], box\_no[9]);

printf(" | | \n\n");

}

int main()

{

int count = 1, match\_position, choice;

char position, Match\_winner[50];

strcpy(line,"Match Winner: ");

printf("Enter the name of the first player\n");

fflush(stdin);

gets(Player[0].Player\_Name);

printf("Enter the age of %s\n",Player[0].Player\_Name);

scanf("%d",&Player[0].age);

printf("Enter the name of the second player\n");

fflush(stdin);

gets(Player[1].Player\_Name);

printf("Enter the age of %s\n",Player[1].Player\_Name);

fflush(stdin);

scanf("%d",&Player[1].age);

do

{

func\_board\_printer();

count = (count % 2) ? 1 : 2;

if (count%2==0){

strcpy(current\_player,Player[1].Player\_Name);

}

else{

strcpy(current\_player,Player[0].Player\_Name);

}

printf("%s's turn, which box would you like to mark %s?: ", current\_player,current\_player);

scanf("%d", &choice);

position = (count == 1) ? '+' : '-';

if (choice == 1 && box\_no[1] == '1')box\_no[1] = position;

else if (choice == 2 && box\_no[2] == '2')box\_no[2] = position;

else if (choice == 3 && box\_no[3] == '3')box\_no[3] = position;

else if (choice == 4 && box\_no[4] == '4')box\_no[4] = position;

else if (choice == 5 && box\_no[5] == '5')box\_no[5] = position;

else if (choice == 6 && box\_no[6] == '6')box\_no[6] = position;

else if (choice == 7 && box\_no[7] == '7')box\_no[7] = position;

else if (choice == 8 && box\_no[8] == '8')box\_no[8] = position;

else if (choice == 9 && box\_no[9] == '9')box\_no[9] = position;

else{

printf("Position is already marked chooose another position!\n");

count--;

getch();

}

match\_position = func\_winner\_check();

count++;

} while (match\_position == -1);

func\_board\_printer();

if (match\_position == 1){

printf("Congratulations! %s you won!!!\nYou will get a prize\n", current\_player);

strcat(line,current\_player);

if (count == 2){

strcpy(Match\_winner,line);

}

else if (count == 3){

strcpy(Match\_winner,line);

}

}

else{

printf("==>\aGame draw");

strcpy(Match\_winner, "The Game was Drawn");

}

FILE \*ptr;

ptr = fopen("Record of wins.txt", "a");

fputs(Match\_winner, ptr);

fputs("\n", ptr);

fclose(ptr);

getchar();

return 0;

}