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**C Programs:**

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| **Array**  #include<stdio.h>  #include<conio.h>  #include <stdlib.h>  #define SIZE 20  int nsum(int[], int);  void display(int[], int);  int average(int[], int);  int findMax(int[], int);  int findMin(int[], int);  void **bubble**(int[], int);   // **bubble sort**  int **find**(int[], int, int); // **Linear search**  int **binary\_search**(int[], int, int); // **binary search**  int delete\_element(int[], int, int);  int menu();  int main() {     int i, a[SIZE], n, x, y, j, v = 1;     // clrscr();     printf("\n\tHow many number: ");     scanf("%d", &n);     for (i = 0;i < n;i++) {        printf("\tEnter %d number: ", i + 1);        scanf("%d", &a[i]);     }     do {        v++;        x = menu();        switch (x) {        case 0: exit(1);        case 1: display(a, n); break;        case 2: printf("\n\t\tNumbers sum is : %d\n", nsum(a, n)); break;        case 3: printf("\n\t\tNumbers average is : %d\n", average(a, n)); break;        case 4: bubble(a, n); break;        case 5: {           printf("\n\t\tEnter finding number: ");           scanf("%d", &y);           j = find(a, n, y);           j != -1 ? printf("\n\t\tYes, %d is present at index %d\n", y, j) : printf("\n\t\tNo, %d is Not found\n", y);           break;        }        case 6: printf("\n\t\tMaximum value is %d\n", findMax(a, n)); break;        case 7: printf("\n\t\tMinimum value is %d\n", findMin(a, n)); break;        case 8: {           printf("\n\t\tEnter finding number: ");           scanf("%d", &y);           j = binary\_search(a, n, y);           printf("%d", j);           j != -1 ? printf("\n\t\tYes, %d is present at index %d\n", y, j) : printf("\n\t\tNo, %d is Not found\n", y);           break;        }        case 9: {           printf("\n\tEnter element Which you wan to delete: ");           scanf("%d", &y);           j = delete\_element(a, y, n);           if (j == -1) {              printf("\n\tNot Found! Enter valid element form array.\n");           }           else {              printf("\n\tElement deleted.\n");              n--; // now total element is 1 reduse           }           break;        }        case 10: {           if (n == SIZE) {              printf("\n\tArray limit is full! not possible to adding more element\n");           }           else {              printf("\n\tEnter element Which you wan to add: ");              scanf("%d", &y);              a[n] = y;              n++; // now total element is 1 increase              printf("\n\tElement added.\n");           }           break;        }        default: printf("\n\t\tEnter valid number from menu\n");        }     } while (true && v < 50);  }  int **delete\_element**(int a[], int v, int n) {     int i, d = -1;     for (i = 0;i < n;i++) {        if (v == a[i]) {           d = i;           break;        }     }     if (d == -1) {        return d;     }     for (i = d;i < n;i++) {        a[i] = a[i + 1];     }     return d;  }  int nsum(int a[], int n) {     int i, sum = 0;     for (i = 0;i < n;i++) {        sum = sum + a[i];     }     return sum;  }  int average(int a[], int n) {     int i, sum = 0;     for (i = 0;i < n;i++) {        sum = sum + a[i];     }     return sum / n;  }  int findMin(int a[], int n) {     int i, min = a[0];     for (i = 0;i < n;i++) {        if (min > a[i])           min = a[i];     }     return min;  }  int findMax(int a[], int n) {     int i, max = 0;     for (i = 0;i < n;i++) {        if (max < a[i])           max = a[i];     }     return max;  }  int find(int a[], int n, int y) { // Linear search     int i;     for (i = 0;i < n;i++) {        if (y == a[i])           return i;     }     return -1;  }  int **binary\_search**(int a[], int n, int y) {     int mid, s = 0, e = n - 1;     bubble(a, n); // binary search work only on sorted array     while (s <= e) {        mid = s + (e - s) / 2;        if (a[mid] == y)           return mid;        //printf("mid=%d, a[mid]=%d",mid,a[mid]);        if (a[mid] > y) {           e = mid - 1;           //printf("e=%d",e);        }        else {           s = mid + 1;        }     }     return -1;  }  void **bubble**(int a[], int n) { // **bubble sort**     int i, t, j;     for (i = 0;i < n - 1;i++) {        for (j = 0;j < n - 1 - i;j++) {           if (a[j] > a[j + 1]) {              t = a[j];              a[j] = a[j + 1];              a[j + 1] = t;           }        }     }     display(a, n);  }  void display(int a[], int n) {     int i;     printf("\n\t");     for (i = 0;i < n;i++) {        printf("\t%d", a[i]);     }     printf("\n");  }  int menu() {     int i;     printf("\n\t 0. Exit program");     printf("\n\t 1. display numbers");     printf("\n\t 2. get numbers sum");     printf("\n\t 3. get numbers average");     printf("\n\t 4. sorting numbers by bubble sort");     printf("\n\t 5. find number");     printf("\n\t 6. find maxnumber number");     printf("\n\t 7. find minnumber number");     printf("\n\t 8. find by binary search");     printf("\n\t 9. delete element");     printf("\n\t10. insert element");     printf("\n\t Enter number which you perform: ");     scanf("%d", &i);     return i;  }    **Output:**  How many number: 5  Enter 1 number: 1  Enter 2 number: 5  Enter 3 number: 2  Enter 4 number: 4  Enter 5 number: 3  0. Exit program  1. display numbers  2. get numbers sum  3. get numbers average  4. sorting numbers by bubble sort  5. find number  6. find maxnumber number  7. find minnumber number  8. find by binary search  9. delete element  10. insert element  Enter number which you perform: 1  1 5 2 4 3  Enter number which you perform: 2  Numbers sum is : 15  Enter number which you perform: 3  Numbers average is : 3  Enter number which you perform: 4  1 2 3 4 5  Enter number which you perform: 5  Enter finding number: 3  Yes, 3 is present at index 2  Enter number which you perform: 6  Maximum value is 5  Enter number which you perform: 7  Minimum value is 1  Enter number which you perform: 8  Enter finding number: 3  1 2 3 4 5  Yes, 3 is present at index 2  Enter number which you perform: 9  Enter element Which you want to delete: 5  Element deleted.  Enter number which you perform: 1  1 2 3 4  Enter number which you perform: 10  Enter element Which you want to add: 5  Element added.  Enter number which you perform: 1  1 2 3 4 5  **Character**  #include<stdio.h>  #include<conio.h>  #include<ctype.h>  void check\_char(char);  char convert(char);  int main() {     char ch;     // clrscr();     printf("\n\n\tEnter any character: ");     scanf("%c", &ch);     // find type     check\_char(ch);     // convert upper to lower & lower to upper     printf("\n\tConverted: %c", convert(ch));     getch();     return 0;  }  void check\_char(char ch) {     if (isdigit(ch))        printf("\n\n\t%c is a Digit", ch);     else if (isspace(ch))        printf("\n\n\t%c is a Space", ch);     else if (isalpha(ch)) {        printf("\n\n\t%c is an Alphabet", ch);        if (islower(ch))           printf("\n\n\t%c is in lowercase", ch);        else           printf("\n\n\t%c is in uppercase", ch);     }     else if (isalnum(ch))        printf("\n\n\t%c is an Alphanumeric character", ch);     else        printf("\n\n\t%c ", ch);  }  char convert(char ch) {     if (islower(ch))        return toupper(ch);     else        return tolower(ch);  }  **Output:**  1.  Enter any character: V  V is an Alphabet  V is in uppercase  Converted: v  2.  Enter any character:  is a Space  Converted:  3.  Enter any character: 8  8 is a Digit  Converted: 8  **Circular prime Number**  #include<stdio.h>  #include<conio.h>  #include<math.h>  int isPrime(int);  int isCircular\_prime(int);  int main() {     int n;     // clrscr();     printf("\n\tEnter number : ");     scanf("%d", &n);     1 == isCircular\_prime(n) ? printf("Yes, number is circular prime") : printf("No, number is not circular prime");     /\*     A circular prime number is a prime number that remains prime under all rotations of its digits.     EX. n = 197     197 → prime     971 → prime     719 → prime     ✅ All rotations are prime ⇒ 197 is a circular prime.     \*/     getch();     return 0;  }  int isPrime(int n) {     int i;     for (i = 2;i <= n / 2;i++) {        if (n % i == 0)           return 0;     }     return 1;  }  int isCircular\_prime(int n) {     int d = 0, p = 1, rem, cp = 0, t = n, i;     while (t > 0) {        d++;        t /= 10;     }     for (i = 1; i < d; i++)  // p = 10^(digits-1)        p = p \* 10;     // printf("%d %d\n", d, p);     while (d > 0) {        rem = n % p;        //printf("\nrem=%d", rem);        cp = (n / p) + (rem \* 10);        if (0 == (isPrime(cp))) return 0;        n = cp;        //printf("cp=%d n=%d", cp, n);        d--;     }     return 1;  }  **Output:**  Enter number : 197  Yes, number is circular prime  **File Handling: 1.**  #include<stdio.h>  #include<conio.h>  int main() {     int i, n, v;     char ch, s[150], name[50];     FILE\* f1;     FILE\* fnum, \* fodd, \* feven;     // clrscr();     // ----------- Write in Loop ------------     f1 = fopen("MCA.txt", "a");     printf("\n\tHow many student ? : ");     scanf("%d", &n);     for (i = 1;i <= n;i++) {        printf("\n\tEnter %d student name: ", i);        scanf(" %s", s);        fprintf(f1, "\t%s\n", s);     }     printf("\n\tEnter file name: ");     // scanf("%s", name);     gets(s);     // ------------ Write String --------------     f1 = fopen(name, "a");     flushall();     printf("\n\tEnter paragraph: ");     scanf("%[^\n]s", s);     //gets(s);     fprintf(f1, "%s", s); // write string     // --------------- Read Full File String ---------     f1 = fopen(name, "r");     printf("\n\t%s file data:- \n", name);     while ((ch = getc(f1)) != EOF) {        printf("%c", ch);     }     // read number from file and spereat even and odd number in two file     fnum = fopen("fnum.txt", "r");     fodd = fopen("fodd.txt", "w");     feven = fopen("feven.txt", "w");     while (!feof(fnum)) {        fscanf(fnum, "%d", &v); // read integer from file and value store in v vareable        if (v / 2 != 0) {           fprintf(fodd, "%d ", v);        }        else {           fprintf(feven, "%d ", v);        }     }     fclose(fnum);     fclose(fodd);     fclose(feven);     fclose(f1);     getch();     return 0;  }  **File Handling: 2.**  #include<stdio.h>  #include<conio.h>  int isPrime(int);  int main() {     int n, i = 2, v = 0;     FILE\* fnum, \* fodd, \* feven, \* fprime;     // clrscr();     // ----------- read integer data from fnum.txt file and if odd than store fodd.txt file else store feven.txt file     fnum = fopen("fnum.txt", "r");     fodd = fopen("fodd.txt", "w");     feven = fopen("feven.txt", "w");     while (!feof(fnum)) { // (n = getw(fnum)) != EOF        fscanf(fnum, "%d", &n); // read integer from file and value store in v vareable        //printf("%d", n);        if (n % 2 != 0) {           fprintf(fodd, "%d ", n);        }        else {           fprintf(feven, "%d ", n);        }     }     printf("Work Done");     fclose(fnum);     fclose(fodd);     fclose(feven);     // ------------ Write prime number in file     fprime = fopen("fprime.txt", "w");     printf("\n\tEnter how many prime numbers store: ");     scanf("%d", &n);     while (v < n) {        if (isPrime(i)) {           v++;           fprintf(fprime, "%d. %d\n", v, i); // write numbers in file           // printf("%d ", i);        }        i++;     }     printf("Work Done");     fclose(fprime);     getch();     return 0;  }  int isPrime(int n) {     int i;     for (i = 2;i <= n / 2;i++) {        if (n % i == 0)           return 0;     }     return 1;  }  **For Loop:**  #include<stdio.h>  #include<conio.h>  void table(int);  void ascii();  void gap10();  void even();  void odd();  int main() {     int i, n, v;     // clrscr();     for (i = 1;i <= 10;i++)        printf("\ti = %d", i);     printf("\n");     i = 1;     for (;;) {        printf("\ti = %d", i);        if (i >= 10)           break;        else           i++;     }     /\*     printf("\n");     for(;;){ // infinite loop        printf("\n\tHey There");     }     \*/     printf("\n");     for (i = 1; i <= 100; i++);     {        printf("\ti = %d", i);     }     printf("\n");     for (i = 100; i > 0; i -= 10) {        printf("\ti = %d", i);     }     printf("\n");     printf("\n\tEnter which table you need: ");     scanf("%d", &n);     table(n);     v = getch();     printf("\n\t%c", v);     printf("\n");     ascii();     v = getch();     printf("\n\t%c", v);     printf("\n");     gap10();     printf("\n");     even();     v = getch();     printf("\n\t%c", v);     printf("\n");     odd();     v = getch();     printf("\n\t%c", v);     getch();     return 0;  }  void gap10() {     int i;     char n;     for (i = 1; i <= 100; i++) {        printf("\ti = %d", i);        if (i % 10 == 0) {           // n = getch();           printf("\t%c\n", n);        }     }  }  void even() {     int i;     printf("\n\tEven number=> \n");     for (i = 1;i <= 100;i++) {        if (i % 2 == 0)           printf("i = %d\t", i);        else           continue;     }  }  void odd() {     int i;     printf("\todd number=> \n");     for (i = 1;i <= 100;i++) {        if (i % 2 == 0)           continue;        else           printf("i = %d\t", i);     }  }  void table(int n) {     int i;     for (i = 1;i <= 10;i++) {        printf("\n\t%d x %d = %d", n, i, n \* i);     }  }  void ascii() {     int i;     int c = 65;     printf("\n\tASCII for A to Z and a to z\n");     for (i = 1;i <= 26;i++) {        printf("\t%d=>%c\t", c, c);        printf("\t%d=>%c\n", c + 32, c + 32);        c = c + 1;     }  }  **Output:**  i = 1 i = 2 i = 3 i = 4 i = 5 i = 6 i = 7 i = 8 i = 9 i = 10  i = 1 i = 2 i = 3 i = 4 i = 5 i = 6 i = 7 i = 8 i = 9 i = 10  i = 101  i = 100 i = 90 i = 80 i = 70 i = 60 i = 50 i = 40 i = 30 i = 20 i = 10  Enter which table you need: 8  8 x 1 = 8  8 x 2 = 16  8 x 3 = 24  8 x 4 = 32  8 x 5 = 40  8 x 6 = 48  8 x 7 = 56  8 x 8 = 64  8 x 9 = 72  8 x 10 = 80  ASCII for A to Z and a to z  65=>A 97=>a  66=>B 98=>b  67=>C 99=>c  68=>D 100=>d  69=>E 101=>e  70=>F 102=>f  71=>G 103=>g  72=>H 104=>h  73=>I 105=>i  74=>J 106=>j  75=>K 107=>k  76=>L 108=>l  77=>M 109=>m  78=>N 110=>n  79=>O 111=>o  80=>P 112=>p  81=>Q 113=>q  82=>R 114=>r  83=>S 115=>s  84=>T 116=>t  85=>U 117=>u  86=>V 118=>v  87=>W 119=>w  88=>X 120=>x  89=>Y 121=>y  90=>Z 122=>z  i = 1 i = 2 i = 3 i = 4 i = 5 i = 6 i = 7 i = 8 i = 9 i = 10  i = 11 i = 12 i = 13 i = 14 i = 15 i = 16 i = 17 i = 18 i = 19 i = 20  i = 21 i = 22 i = 23 i = 24 i = 25 i = 26 i = 27 i = 28 i = 29 i = 30  i = 31 i = 32 i = 33 i = 34 i = 35 i = 36 i = 37 i = 38 i = 39 i = 40  i = 41 i = 42 i = 43 i = 44 i = 45 i = 46 i = 47 i = 48 i = 49 i = 50  i = 51 i = 52 i = 53 i = 54 i = 55 i = 56 i = 57 i = 58 i = 59 i = 60  i = 61 i = 62 i = 63 i = 64 i = 65 i = 66 i = 67 i = 68 i = 69 i = 70  i = 71 i = 72 i = 73 i = 74 i = 75 i = 76 i = 77 i = 78 i = 79 i = 80  i = 81 i = 82 i = 83 i = 84 i = 85 i = 86 i = 87 i = 88 i = 89 i = 90  i = 91 i = 92 i = 93 i = 94 i = 95 i = 96 i = 97 i = 98 i = 99 i = 100  Even number=>  i = 2 i = 4 i = 6 i = 8 i = 10 i = 12 i = 14 i = 16 i = 18 i = 20 i = 22 i = 24 i = 26 i = 28 i = 30 i = 32 i = 34 i = 36 i = 38 i = 40 i = 42 i = 44 i = 46 i = 48 i = 50 i = 52 i = 54 i = 56 i = 58 i = 60 i = 62 i = 64 i = 66 i = 68 i = 70 i = 72 i = 74 i = 76 i = 78 i = 80 i = 82 i = 84 i = 86 i = 88 i = 90 i = 92 i = 94 i = 96 i = 98 i = 100  odd number=>  i = 1 i = 3 i = 5 i = 7 i = 9 i = 11 i = 13 i = 15 i = 17 i = 19 i = 21 i = 23 i = 25 i = 27 i = 29 i = 31 i = 33 i = 35 i = 37 i = 39 i = 41 i = 43 i = 45 i = 47 i = 49 i = 51 i = 53 i = 55 i = 57 i = 59 i = 61 i = 63 i = 65 i = 67 i = 69 i = 71 i = 73 i = 75 i = 77 i = 79 i = 81 i = 83 i = 85 i = 87 i = 89 i = 91 i = 93 i = 95 i = 97 i = 99  **MATRIX Programs:**  #include<stdio.h>  #include<conio.h>  #include<stdlib.h>  #define MAX 20  #define MORE 50  void print\_matrix(int m[MAX][MAX], int r, int c);  void tra\_matrix(int m[MAX][MAX], int r, int c);  void matrix\_sum(int m1[MAX][MAX], int m2[MAX][MAX], int r, int c);  void matrix\_sub(int m1[MAX][MAX], int m2[MAX][MAX], int r, int c);  void matrix\_mul(int m1[MAX][MAX], int m2[MAX][MAX], int r, int c);  void matrix\_row\_col\_sum(int[MAX][MAX], int, int);  void magic\_matrix(int[MAX][MAX], int, int);  int menu();  int main() {     int matrix[MAX][MAX], m2[MAX][MAX], i, j, r, c;     char name[MAX][MORE];     // clrscr();     do {        switch (menu()) {        case 0: exit(1);        case 1:           printf("\n\t Enter row and column: ");           scanf("%d %d", &r, &c);           for (i = 0;i < r;i++)              for (j = 0;j < c;j++) {                 printf("\tEnter value of matrix[%d][%d]: ", i, j);                 scanf("%d", &matrix[i][j]);              }           print\_matrix(matrix, r, c);           break;        case 2:           printf("\n\t Enter row and column: ");           scanf("%d %d", &r, &c);           for (i = 0;i < r;i++)              for (j = 0;j < c;j++) {                 printf("\tEnter value of matrix[%d][%d]: ", i, j);                 scanf("%d", &matrix[i][j]);              }           print\_matrix(matrix, r, c);           printf("\t------------------------\n");           tra\_matrix(matrix, r, c);           break;        case 3:           printf("\n\t Enter row and column: ");           scanf("%d %d", &r, &c);           for (i = 0;i < r;i++)              for (j = 0;j < c;j++) {                 printf("\tEnter value of matrix[%d][%d]: ", i, j);                 scanf("%d", &matrix[i][j]);              }           printf("\n\n\tSecond matrix\n");           for (i = 0;i < r;i++)              for (j = 0;j < c;j++) {                 printf("\tEnter value of matrix[%d][%d]: ", i, j);                 scanf("%d", &m2[i][j]);              }           matrix\_sum(matrix, m2, r, c);           break;        case 4:           printf("\n\t Enter row and column: ");           scanf("%d %d", &r, &c);           for (i = 0;i < r;i++)              for (j = 0;j < c;j++) {                 printf("\tEnter value of matrix[%d][%d]: ", i, j);                 scanf("%d", &matrix[i][j]);              }           printf("\n\n\tSecond matrix\n");           for (i = 0;i < r;i++)              for (j = 0;j < c;j++) {                 printf("\tEnter value of matrix[%d][%d]: ", i, j);                 scanf("%d", &m2[i][j]);              }           matrix\_sub(matrix, m2, r, c);           break;        case 5:           printf("\n\t Enter row and column: ");           scanf("%d %d", &r, &c);           for (i = 0;i < r;i++)              for (j = 0;j < c;j++) {                 printf("\tEnter value of matrix[%d][%d]: ", i, j);                 scanf("%d", &matrix[i][j]);              }           printf("\n\n\tSecond matrix\n");           for (i = 0;i < r;i++)              for (j = 0;j < c;j++) {                 printf("\tEnter value of matrix[%d][%d]: ", i, j);                 scanf("%d", &m2[i][j]);              }           matrix\_mul(matrix, m2, r, c);           break;        case 6:           printf("\n\t Enter row and column: ");           scanf("%d %d", &r, &c);           for (i = 0;i < r;i++)              for (j = 0;j < c;j++) {                 printf("\tEnter value of matrix[%d][%d]: ", i, j);                 scanf("%d", &matrix[i][j]);              }           matrix\_row\_col\_sum(matrix, r, c);           break;        case 7:           printf("\n\t Enter row and column: ");           scanf("%d %d", &r, &c);           for (i = 0;i < r;i++)              for (j = 0;j < c;j++) {                 printf("\tEnter value of matrix[%d][%d]: ", i, j);                 scanf("%d", &matrix[i][j]);              }           magic\_matrix(matrix, r, c);           break;        }     } while (1);  }  void print\_matrix(int m[MAX][MAX], int r, int c) {     int i, j;     for (i = 0;i < r;i++) {        for (j = 0;j < c;j++) {           printf("\t%d", m[i][j]);        }        printf("\n");     }  }  void tra\_matrix(int m[MAX][MAX], int r, int c) {     int i, j, tm[MAX][MAX];     for (i = 0;i < r;i++) {        for (j = 0;j < c;j++) {           tm[i][j] = m[j][i];           printf("\t%d", tm[i][j]);        }        printf("\n");     }  }  void matrix\_sum(int m1[MAX][MAX], int m2[MAX][MAX], int r, int c) {     int i, j, s = 0;     print\_matrix(m1, r, c);     printf("\t------------------------\n");     print\_matrix(m2, r, c);     printf("\t------------------------\n");     for (i = 0;i < r;i++) {        for (j = 0;j < c;j++) {           s = m1[i][j] + m2[i][j];           printf("\t%d", s);        }        printf("\n");     }  }  void matrix\_sub(int m1[MAX][MAX], int m2[MAX][MAX], int r, int c) {     int i, j, s = 0;     print\_matrix(m1, r, c);     printf("\t------------------------\n");     print\_matrix(m2, r, c);     printf("\t------------------------\n");     for (i = 0;i < r;i++) {        for (j = 0;j < c;j++) {           s = m1[i][j] - m2[i][j];           printf("\t%d", s);        }        printf("\n");     }  }  void matrix\_mul(int m1[MAX][MAX], int m2[MAX][MAX], int r, int c) {     int i, j, k, s;     print\_matrix(m1, r, c);     printf("\t------------------------\n");     print\_matrix(m2, r, c);     printf("\t------------------------\n");     for (i = 0;i < r;i++) {        for (j = 0;j < c;j++) {           s = 0;           for (k = 0;k < r;k++) { // or k<c; because r=c              s += m1[i][k] \* m2[k][j];           }           printf("\t%d", s);        }        printf("\n");     }  }  void matrix\_row\_col\_sum(int m[MAX][MAX], int r, int c) {     int i, j, sc = 0, sr[MAX] = { 0 }, total = 0;     for (i = 0;i < r;i++) {        for (j = 0;j < c;j++) {           sc += m[i][j];           sr[j] += m[i][j];           printf("\t%d", m[i][j]);        }        printf("\t:%d\n", sc);        total += sc;        sc = 0;     }     for (i = 0;i < r;i++) {        total += sr[i];        printf("\t:%d", sr[i]);     }     printf("\t:%d\n", total);  }  void magic\_matrix(int m[MAX][MAX], int r, int c) {     int i, j, sc = 0, sr[MAX] = { 0 }, sx = 0, sy = 0, n = r - 1;     printf("\t------------------------\n");     printf("\tMagic matrix: \n");     for (i = 0;i < r;i++) {        for (j = 0;j < c;j++) {           sc += m[i][j];           sr[j] += m[i][j];           printf("\t%d", m[i][j]);           if (i == j) { sx += m[i][j]; }           if (i == n) { sy += m[i][j]; }        }        printf("\t:%d\n", sc);        sc = 0;        n--;     }     for (i = 0;i < r;i++) {        printf("\t:%d", sr[i]);     }     printf("\n\n\tsum of sx=%d\n\tsum of sy=%d\n", sx, sy);  }  void name\_sort(char name[MAX][MORE], int r) {     //int i;     //char first[r];  }  int menu() {     int x;     printf("\n\t 0. Exit program");     printf("\n\t 1. print matrix");     printf("\n\t 2. row column transpose matrix");     printf("\n\t 3. 2 matrix addition");     printf("\n\t 4. 2 matrix subtraction");     printf("\n\t 5. 2 matrix multiplication");     printf("\n\t 6. matrix sum row and column");     printf("\n\t 7. magic matrix");     printf("\n\t Enter number: ");     scanf("%d", &x);     return x;  }  **Output:**  0. Exit program  1. print matrix  2. row column transpose matrix  3. 2 matrix addition  4. 2 matrix subtraction  5. 2 matrix multiplication  6. matrix sum row and column  7. magic matrix  8. name sorting  Enter number: 1  Enter row and column: 2 2  Enter value of matrix[0][0]: 1  Enter value of matrix[0][1]: 2  Enter value of matrix[1][0]: 3  Enter value of matrix[1][1]: 4  1 2  3 4  Enter number: 2  1 2  3 4  ------------------------  1 3  2 4    Enter number: 3  Enter row and column: 2 2  Enter value of matrix[0][0]: 1  Enter value of matrix[0][1]: 2  Enter value of matrix[1][0]: 3  Enter value of matrix[1][1]: 4  Second matrix  Enter value of matrix[0][0]: 5  Enter value of matrix[0][1]: 6  Enter value of matrix[1][0]: 7  Enter value of matrix[1][1]: 8  1 2  3 4  ------------------------  5 6  7 8  ------------------------  6 8  10 12  Enter number: 4  5 6  7 8  ------------------------  1 2  3 4  ------------------------  4 4  4 4  Enter number: 5  1 2  3 4  ------------------------  5 6  7 8  ------------------------  19 22  43 50  Enter number: 6  1 2 :3  3 4 :7  :4 :6 :20  Enter number: 7  ------------------------  Magic matrix:  1 2 :3  3 4 :7  :4 :6  sum of sx=5  sum of sy=0  **Output**  return x;  **Output**  return x;  **Output**  return x;  **Output** |

**bus\_data.txt**

|  |
| --- |
| Ashapura Bus  Ahmedabad-Khambhalia,Ahmedabad|Limbdi|Chotila|Rajkot|Dhrol|Jamnagar|Khambhalia  Rajkot-Dwarka,Rajkot|Jetpur|Junagadh|Somnath|Porbandar|Dwarka  Bhuj-Ahmedabad,Bhuj|Bhachau|Morbi|Chotila|Ahmedabad  Bhavnagar-Surat,Bhavnagar|Botad|Surendranagar|Ahmedabad|Anand|Surat  Junagadh-Dwarka,Junagadh|Dhoraji|Porbandar|Khambhalia|Dwarka  Gandhidham-Bhavnagar,Gandhidham|Bhachau|Morbi|Rajkot|Botad|Bhavnagar  Surat-Rajkot,Surat|Vadodara|Limbdi|Chotila|Rajkot  Jamnagar-Bhavnagar,Jamnagar|Khambhalia|Rajkot|Botad|Bhavnagar  Palanpur-Ahmedabad,Palanpur|Mehsana|Gandhinagar|Ahmedabad  Bhuj-Surat,Bhuj|Bhachau|Morbi|Vadodara|Surat  Deep Travels  Porbandar-Bhavnagar,Porbandar|Junagadh|Amreli|Bhavnagar  Ahmedabad-Bhuj,Ahmedabad|Rajkot|Morbi|Bhachau|Bhuj  Junagadh-Surat,Junagadh|Amreli|Vadodara|Surat  Jamnagar-Ahmedabad,Jamnagar|Dhrol|Rajkot|Limbdi|Ahmedabad  Morbi-Bhavnagar,Morbi|Botad|Bhavnagar  Bhuj-Surat,Bhuj|Bhachau|Morbi|Limbdi|Vadodara|Surat  Dwarka-Rajkot,Dwarka|Khambhalia|Jamnagar|Dhrol|Rajkot  Porbandar-Ahmedabad,Porbandar|Khambhalia|Jamnagar|Rajkot|Ahmedabad  Surendranagar-Junagadh,Surendranagar|Botad|Jetpur|Junagadh  Gandhidham-Bhavnagar,Gandhidham|Bhachau|Rajkot|Botad|Bhavnagar  Eagle Express  Ahmedabad-Bhuj,Ahmedabad|Bhachau|Bhuj  Surat-Jamnagar,Surat|Vadodara|Rajkot|Khambhalia|Jamnagar  Rajkot-Vadodara,Rajkot|Chotila|Surendranagar|Limbdi|Anand|Vadodara  Bhavnagar-Ahmedabad,Bhavnagar|Botad|Limbdi|Ahmedabad  Gandhidham-Junagadh,Gandhinagar|Ahmedabad|Chotila|Rajkot|Jetpur|Junagadh  Dwarka-Vadodara,Dwarka|Khambhalia|Rajkot|Anand|Vadodara  Junagadh-Surat,Junagadh|Jetpur|Rajkot|Ahmedabad|Anand|Surat  Gandhinagar-Palanpur,Gandhinagar|Mehsana|Palanpur  Morbi-Surat,Morbi|Rajkot|Surendranagar|Anand|Vadodara|Surat  Jamnagar-Bhavnagar,Jamnagar|Rajkot|Botad|Bhavnagar  Galaxy Travels  Ahmedabad-Jamnagar,Ahmedabad|Rajkot|Dhrol|Jamnagar  Rajkot-Somnath,Rajkot|Jetpur|Junagadh|Somnath  Bhuj-Surat,Bhuj|Anjar|Bhachau|Morbi|Limbdi|Surat  Vadodara-Dwarka,Vadodara|Anand|Rajkot|Khambhalia|Dwarka  Surat-Bhavnagar,Surat|Vadodara|Anand|Botad|Bhavnagar  Morbi-Junagadh,Morbi|Rajkot|Jetpur|Junagadh  Bhavnagar-Jamnagar,Bhavnagar|Botad|Rajkot|Jamnagar  Junagadh-Palanpur,Junagadh|Jetpur|Rajkot|Ahmedabad|Mehsana|Palanpur  Surendranagar-Bhuj,Surendranagar|Chotila|Morbi|Bhachau|Bhuj  Gandhidham-Vadodara,Gandhidham|Bhachau|Morbi|Anand|Vadodara  G.S.R.T.C.  Gandhinagar-Bhavnagar,Gandhinagar|Ahmedabad|Surendranagar|Botad|Bhavnagar  Rajkot-Surat,Rajkot|Chotila|Surendranagar|Vadodara|Surat  Bhuj-Vadodara,Bhuj|Bhachau|Morbi|Anand|Vadodara  Junagadh-Ahmedabad,Junagadh|Jetpur|Rajkot|Ahmedabad  Bhuj-Dwarka,Bhuj|Morbi|Rajkot|Dhrol|Jamnagar|Khambhalia|Dwarka  Surat-Bhuj,Surat|Vadodara|Ahmedabad|Morbi|Bhachau|Bhuj  Vadodara-Somnath,Vadodara|Anand|Rajkot|Junagadh|Somnath  Palanpur-Surat,Palanpur|Mehsana|Ahmedabad|Anand|Vadodara|Surat  Morbi-Bhavnagar,Morbi|Rajkot|Chotila|Limbdi|Botad|Bhavnagar  Dwarka-Junagadh,Dwarka|Khambhalia|Jamnagar|Dhrol|Rajkot|Junagadh  Patel Travels  Gandhinagar-Porbandar,Gandhinagar|Ahmedabad|Rajkot|Dhrol|Jamnagar|Junagadh|Porbandar  Surat-Bhuj,Surat|Vadodara|Rajkot|Morbi|Gandhidham|Bhuj  Rajkot-Vadodara,Rajkot|Chotila|Limbdi|Anand|Vadodara  Bhavnagar-Ahmedabad,Bhavnagar|Botad|Surendranagar|Limbdi|Ahmedabad  Junagadh-Morbi,Junagadh|Jetpur|Rajkot|Morbi  Vadodara-Somnath,Vadodara|Anand|Rajkot|Junagadh|Somnath  Bhuj-Rajkot,Bhuj|Anjar|Bhachau|Morbi|Rajkot  Dwarka-Surat,Dwarka|Khambhalia|Jamnagar|Rajkot|Vadodara|Surat  Gandhidham-Ahmedabad,Gandhidham|Bhachau|Surendranagar|Ahmedabad  Palanpur-Bhavnagar,Palanpur|Gandhinagar|Limbdi|Botad|Bhavnagar  Dwarkadhish Bus  Rajkot-Surat,Rajkot|Chotila|Limbdi|Vadodara|Surat  Ahmedabad-Somnath,Ahmedabad|Rajkot|Junagadh|Somnath  Dwarka-Gandhinagar,Dwarka|Porbandar|Junagadh|Jetpur|Rajkot|Ahmedabad|Gandhinagar  Bhuj-Ahmedabad,Bhuj|Bhachau|Ahmedabad  Dwarka-Bhavnagar,Dwarka|Khambhalia|Junagadh|Amreli|Botad|Bhavnagar  Junagadh-Bhuj,Junagadh|Jetpur|Rajkot|Bhachau|Bhuj  Morbi-Dwarka,Morbi|Rajkot|Khambhalia|Dwarka  Vadodara-Rajkot,Vadodara|Anand|Limbdi|Chotila|Rajkot  Dwarka-Ahmedabad,Dwarka|Khambhalia|Jamnagar|Rajkot|Surendranagar|Ahmedabad  Palanpur-Dwarka,Palanpur|Gandhinagar|Ahmedabad|Rajkot|Jamnagar|Khambhalia|Dwarka  Nand Travels  Ahmedabad-Bhuj,Ahmedabad|Chotila|Morbi|Anjar|Bhuj  Rajkot-Surat,Rajkot|Chotila|Ahmedabad|Vadodara|Surat  Vadodara-Somnath,Vadodara|Ahmedabad|Rajkot|Junagadh|Somnath  Surat-Jamnagar,Surat|Vadodara|Ahmedabad|Rajkot|Jamnagar  Junagadh-Bhavnagar,Junagadh|Jetpur|Amreli|Botad|Bhavnagar  Bhuj-Vadodara,Bhuj|Anjar|Bhachau|Morbi|Anand|Vadodara  Dwarka-Surat,Dwarka|Khambhalia|Jamnagar|Rajkot|Ahmedabad|Gandhinagar|Surat  Gandhidham-Ahmedabad,Gandhidham|Bhachau|Surendranagar|Ahmedabad  Bhavnagar-Rajkot,Bhavnagar|Amreli|Rajkot  Palanpur-Porbandar,Palanpur|Mehsana|Ahmedabad|Rajkot|Jetpur|Junagadh|Porbandar |

**OUTPUT:-**

============= Bus Booking System =============

1. Advance Booking

2. Booking History

3. View Available Bus

0. Exit Program

Enter number from menu: 3

Operator-1: Ashapura Bus

Route-1: Ahmedabad-Khambhalia Route-2: Rajkot-Dwarka

Route-3: Bhuj-Ahmedabad Route-4: Bhavnagar-Surat

Route-5: Junagadh-Dwarka Route-6: Gandhidham-Bhavnagar

Route-7: Surat-Rajkot Route-8: Jamnagar-Bhavnagar

Route-9: Palanpur-Ahmedabad Route-10: Bhuj-Surat

Operator-2: Deep Travels

Route-1: Porbandar-Bhavnagar Route-2: Ahmedabad-Bhuj

Route-3: Junagadh-Surat Route-4: Jamnagar-Ahmedabad

Route-5: Morbi-Bhavnagar Route-6: Bhuj-Surat

Route-7: Dwarka-Rajkot Route-8: Porbandar-Ahmedabad

Route-9: Surendranagar-Junagadh Route-10: Gandhidham-Bhavnagar

Operator-3: Eagle Express

Route-1: Ahmedabad-Bhuj Route-2: Surat-Jamnagar

Route-3: Rajkot-Vadodara Route-4: Bhavnagar-Ahmedabad

Route-5: Gandhidham-Junagadh Route-6: Dwarka-Vadodara

Route-7: Junagadh-Surat Route-8: Gandhinagar-Palanpur

Route-9: Morbi-Surat Route-10: Jamnagar-Bhavnagar

Operator-4: Galaxy Travels

Route-1: Ahmedabad-Jamnagar Route-2: Rajkot-Somnath

Route-3: Bhuj-Surat Route-4: Vadodara-Dwarka

Route-5: Surat-Bhavnagar Route-6: Morbi-Junagadh

Route-7: Bhavnagar-Jamnagar Route-8: Junagadh-Palanpur

Route-9: Surendranagar-Bhuj Route-10: Gandhidham-Vadodara

Operator-5: G.S.R.T.C.

Route-1: Gandhinagar-Bhavnagar Route-2: Rajkot-Surat

Route-3: Bhuj-Vadodara Route-4: Junagadh-Ahmedabad

Route-5: Bhuj-Dwarka Route-6: Surat-Bhuj

Route-7: Vadodara-Somnath Route-8: Palanpur-Surat

Route-9: Morbi-Bhavnagar Route-10: Dwarka-Junagadh

Operator-6: Patel Travels

Route-1: Gandhinagar-Porbandar Route-2: Surat-Bhuj

Route-3: Rajkot-Vadodara Route-4: Bhavnagar-Ahmedabad

Route-5: Junagadh-Morbi Route-6: Vadodara-Somnath

Route-7: Bhuj-Rajkot Route-8: Dwarka-Surat

Route-9: Gandhidham-Ahmedabad Route-10: Palanpur-Bhavnagar

Operator-7: Dwarkadhish Bus

Route-1: Rajkot-Surat Route-2: Ahmedabad-Somnath

Route-3: Dwarka-Gandhinagar Route-4: Bhuj-Ahmedabad

Route-5: Dwarka-Bhavnagar Route-6: Junagadh-Bhuj

Route-7: Morbi-Dwarka Route-8: Vadodara-Rajkot

Route-9: Dwarka-Ahmedabad Route-10: Palanpur-Dwarka

Operator-8: Nand Travels

Route-1: Ahmedabad-Bhuj Route-2: Rajkot-Surat

Route-3: Vadodara-Somnath Route-4: Surat-Jamnagar

Route-5: Junagadh-Bhavnagar Route-6: Bhuj-Vadodara

Route-7: Dwarka-Surat Route-8: Gandhidham-Ahmedabad

Route-9: Bhavnagar-Rajkot Route-10: Palanpur-Porbandar

============= Bus Booking System =============

1. Advance Booking

2. Booking History

3. View Available Bus

0. Exit Program

Enter number from menu: 1

1. Ahmedabad 2. Amreli 3. Anjar 4. Anand

5. Bhavnagar 6. Botad 7. Bhuj 8. Dwarka

9. Chotila 10. Bhachau 11. Dhrol 12. Dhoraji

13. Gandhinagar 14. Gandhidham 15. Jamnagar 16. Junagadh

17. Jetpur 18. Khambhalia 19. Limbdi 20. Mehsana

21. Morbi 22. Porbandar 23. Palanpur 24. Rajkot

25. Somnath 26. Surat 27. Vadodara 28. Surendranagar

From: 1

To: 26

Ahmedabad To Surat

No. Bus Operator Name Bus Route Price Discount

---------------------------------------------------------------------------

1 Ashapura Bus Bhavnagar-Surat 216.00 10%

2 Eagle Express Junagadh-Surat 235.20 2%

3 G.S.R.T.C. Palanpur-Surat 252.00 30%

4 Nand Travels Rajkot-Surat 220.80 8%

5 Nand Travels Dwarka-Surat 220.80 8%

Enter number: 5

Bus Operator: Nand Travels Route: Dwarka-Surat

----------------------------------

Door | Driver

1A 1B 1C 1D 1E

2A 2B 2C 2D 2E

3A 3B 3C 3D 3E

4A 4B 4C 4D 4E

5A 5B 5C 5D 5E

6A 6B 6C 6D 6E

7A 7B 7C 7D 7E

8A 8B 8C 8D 8E

9A 9B 9C 9D 9E 9F

----------------------------------

Select Seat (ex: 4B): 2E

Enter Your name: Vishal

Enter Mobile Number: 1234567890

Enter Your Age: 23

Enter Your Gender[M/F]: M

Your Bus Booking Successfully.

--[record file 1234567890.txt created.]

For see details go on option 2. Booking History and Enter mobile number carefully!

============= Bus Booking System =============

1. Advance Booking

2. Booking History

3. View Available Bus

0. Exit Program

Enter number from menu: 2

Enter Mobile Number: 1234567890

no name mobile age gender journey bus seat price date

--------------------------------------------------------------------------------------------------------------

1 Vishal 1234567890 23 M Ahmedabad to Surat Nand Travels 2E 220.80 03/10/2025

============= Bus Booking System =============

1. Advance Booking

2. Booking History

3. View Available Bus

0. Exit Program

Enter number from menu: 0

GitHub Link: <https://github.com/VishalChudasama08/MCA_Projects/tree/main/Bus_Booking_System_In_C_Language>

Run In VS Code OR Direct Run .exe File For Batter Formatted Output

Thank You