

```

1  #include <stdio.h>
2  #include <stdlib.h>
3
4  #define megisto_plithos 59
5
6  typedef enum {
7      FALSE, TRUE
8  } boolean;
9
10 typedef boolean typos_synolou[megisto_plithos];
11 typedef int stoixeio_synolou;
12
13 void Katholiko(typos_synolou synolo);
14 void Dimiourgia(typos_synolou synolo);
15 void displayset(typos_synolou set);
16 void Eisagogi(stoixeio_synolou stoixeio, typos_synolou synolo);
17 boolean Melos(stoixeio_synolou stoixeio, typos_synolou synolo);
18 boolean isPrime(int numb);
19 void TomiSynolou(typos_synolou s1, typos_synolou s2, typos_synolou tomi);
20 void EnosiSynolou(typos_synolou s1, typos_synolou s2, typos_synolou enosi);
21 void DiaforaSynolou(typos_synolou s1, typos_synolou s2, typos_synolou diafora);
22 void ComplementSynolou(typos_synolou s1, typos_synolou sympliroma);
23
24 int main()
25 {
26     /*????? ???????.*/
27     typos_synolou periti,prwti,tomi_peritwn_prwtwn,enosi_peritwn_prwtwn,peritiNOTprwti,sympliroma_prwtwn;
28
29     /*????????? ?????? ?????? ??? ?????? ???.(????? a)*/
30     Dimiourgia(periti);
31     for(stoixeio_synolou i=0; i < megisto_plithos; i+=2)
32         Eisagogi(i,periti);
33     printf("Synolo perittwn arithmwn:");
34     displayset(periti);
35
36     /*????????? ?????? ?????? ??? ?????? ???.(????? b)*/
37     Dimiourgia(prwti);
38     for(stoixeio_synolou i=0; i < megisto_plithos; i++)
39         if(isPrime(i+1))
40             Eisagogi(i,prwti);
41     printf("Synolo prwtwn arithmwn:");
42     displayset(prwti);
43
44     /*????????? ?????? ?????? ?????? ??? ?????? ?????? ??? ?????? ???.(????? c)*/
45     Dimiourgia(tomi_peritwn_prwtwn);
46     TomiSynolou(periti,prwti,tomi_peritwn_prwtwn);
47     printf("Tomi peritwn kai prwtwn arithmwn:");
48     displayset(tomi_peritwn_prwtwn);
49
50     /*????????? ?????? ?????? ?????? ??? ?????? ?????? ??? ?????? ???.(????? d)*/
51     Dimiourgia(enosi_peritwn_prwtwn);
52     EnosiSynolou(periti,prwti,enosi_peritwn_prwtwn);
53     printf("Enosi peritwn kai prwtwn arithmwn:");
54     displayset(enosi_peritwn_prwtwn);
55
56     /*????????? ?????? ?????? ?????? ??? ?????? ?????? ??? ?????? ???.(????? e)*/
57     Dimiourgia(peritiNOTprwti);
58     DiaforaSynolou(periti,prwti,peritiNOTprwti);
59     printf("Synolo peritwn pou den einai prwti:");
60     displayset(peritiNOTprwti);
61
62     /*????????? ?????? ??? ?????? ?????? ?????? ?????? ??? ?????? ???.(????? f)*/
63     Dimiourgia(sympliroma_prwtwn);
64     ComplementSynolou(prwti,sympliroma_prwtwn);
65     printf("Symplirwma prwtwn arithmwn:");
66     displayset(sympliroma_prwtwn);

```

```

67
68     return 0;
69 }
70
71 void Katholiko(typos_synolou synolo)
72 {
73     stoixeio_synolou i;
74
75     for (i = 0; i < megisto_plithos; i++)
76         synolo[i] = TRUE;
77 }
78
79 void Dimiourgia(typos_synolou synolo)
80 {
81     stoixeio_synolou i;
82
83     for (i = 0; i < megisto_plithos; i++)
84         synolo[i] = FALSE;
85 }
86
87 void Eisagogi(stoixeio_synolou stoixeio, typos_synolou synolo)
88 {
89     synolo[stoixeio] = TRUE;
90 }
91
92 /*???????????? displayset ??? ??? ???????? ??? ??????????????(????? ?????????)*/
93 void displayset(typos_synolou set)
94 {
95     stoixeio_synolou i;
96     printf("[");
97     for (i=0;i < megisto_plithos;i++)
98     {
99         if(Melos(i,set))
100             printf(" %d",i+1);
101     }
102     printf("]\n");
103 }
104
105 boolean Melos(stoixeio_synolou stoixeio, typos_synolou synolo)
106 {
107     return synolo[stoixeio];
108 }
109
110 /*??????????? ??????? ??????? ????????(????? ?????????)*/
111 boolean isPrime(int numb)
112 {
113     int counter=0;
114     if(numb > 1)
115     {
116         for(int i=1; i < numb+1; i++)
117             if(numb%i==0)
118                 counter++;
119
120         if(counter == 2)
121             return 1;
122         else
123             return 0;
124     }
125     else
126         return 0;
127 }
128 }
129
130 void TomiSynolou(typos_synolou s1, typos_synolou s2, typos_synolou tomi)
131 {
132     stoixeio_synolou i;

```

```

133
134     for (i = 0; i < megisto_plithos; i++)
135         tomi[i] = Melos(i, s1) && Melos(i, s2);
136 }
137
138 void EnosiSynolou(typos_synolou s1, typos_synolou s2, typos_synolou enosi)
139 {
140     stoixeio_synolou i;
141
142     for (i = 0; i < megisto_plithos; i++)
143         enosi[i] = Melos(i, s1) || Melos(i, s2);
144 }
145
146 void DiaforaSynolou(typos_synolou s1, typos_synolou s2, typos_synolou diafora)
147 {
148     stoixeio_synolou i;
149
150     for (i = 0; i < megisto_plithos; i++)
151         diafora[i] = Melos(i, s1) && (!Melos(i, s2));
152 }
153
154 /*????????? ?????????? ??????????????(??????? ??????????)*/
155 void ComplementSynolou(typos_synolou s1, typos_synolou sympliroma)
156 {
157     typos_synolou numbers;
158
159     Katholiko(numbers);
160     DiaforaSynolou(numbers, s1, sympliroma);
161 }

```