

~\Desktop\CPROGRAMMES\A1Q1.c

```
1  #include<stdio.h>
2  #include<math.h>
3  void dec(int a){
4  int div=0,d,n=0,c=0,z=0;
5  while(a!=0){
6  d=a%2;
7  div=div*10+d;
8  a=a/2;
9  z=z+d;
10 if(z==0) //counts trailing zero of the binary number
11 c++;
12 }
13 while(div!=0){
14     d=div%10;
15     n=n*10+d;
16     div=div/10;
17 }
18 double t=pow(10,c);
19 n=n*t;
20 printf("Binary is %d",n);
21 }
22
23 void bin(int a){
24 int d,sum=0,i=0,temp=a;double s;
25 while(temp!=0){
26     d=temp%10;
27     temp=temp/10;
28 }
29 while(a!=0){
30     d=a%10;
31     s=pow(2,i);
32     sum=sum+d*s;
33     a=a/10;
34     i++;
35 }
36 printf("Decimal is %d",sum);
37 }
38 int main(){
39
40     //Q1
41     int orgnum,num,sum=0,count=0;
42     printf("enter the number to check whether its amstrong or not:");
43     scanf("%d",&num);
44     orgnum=num;
45     while(num!=0){
46         num=num/10;
47         count++;
48     }
49     num=orgnum;
50     while(num!=0){
51         int r=num%10;
```

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52     sum=sum+pow(r,count);
53     num=num/10;
54 }
55 if(sum==orgnum){
56     printf("number is amstrong");
57 }
58 else{
59     printf("not amstrong");
60 }
61
62 //Q2
63 int a,b;
64 printf("enter the smallest number between 2 numbers:\n");
65 scanf("%d",&a);
66 printf("enter the largest number between 2 numbers:\n");
67 scanf("%d",&b);
68 while(b!=0){
69     int c=a%b;
70     a=b;
71     b=c;
72 }
73 printf("hcf is %d",a);
74
75 //Q4
76 int a,b;
77 printf("provide two numbers a and b:");
78 scanf("%d %d",&a,&b);
79 //1st method:
80 int c;
81 c=a;
82 a=b;
83 b=c;
84 printf("a:%d,b:%d",a,b);
85 //2nd method:
86 a=a+b;
87 b=a-b;
88 a=a-b;
89 printf("a:%d,b:%d",a,b);
90 //3rd method
91 a=a*b;
92 b=a/b;
93 a=a/b;
94 //4th method
95 a=a^b;
96 b=a^b;
97 a=a^b;
98
99 //Q5
100 int num,sum=0;
101 printf("enter the number to check that it is a perfect square or not");
102 scanf("%d",&num);
103 for(int i=1;i<=num;i++){
104     if(num%i==0){
105         sum+=i;
```

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106     }
107 }
108 if(sum==num){
109     printf("perfect square");
110 }
111 else{
112     printf("not perfect square");
113 }
114
115 //Q6
116 int x,y;
117 printf("enter the x and y coordinate");
118 scanf("%d %d",&x,&y);
119 if(x==0&&y==0){
120     printf("doesn't lie in any quadrant");
121 }
122 else if(x>0&&y>0){
123     printf("1 quadrant");
124 }
125 else if(x<0&&y>0){
126     printf("2 quadrant");
127 }
128 else if(x<0&&y<0){
129     printf("3 quadrant");
130 }
131 else{
132     printf("4 quadrant");
133 }
134
135 //Q7
136 int num,ch;
137 printf("Enter your number: ");
138 scanf("%d",&num);
139 printf("1. Decimal to Binary\n2. Binary to Decimal\nEnter your choice: ");
140 scanf("%d",&ch);
141 switch(ch){
142     case 1:
143         dec(num);
144         break;
145     case 2:
146         bin(num);
147         break;
148     default:
149         printf("Invalid Choice!");
150 }
151
152 //Q8
153 int n;
154 printf("enter the number of rows");
155 scanf("%d",&n);
156 for(int i=1;i<=n;i++){
157     for(int j=1;j<=i;j++){
158         if((i+j)%2==0){
159             printf("1");
```

```
160         }else{
161             printf("0");
162         }
163
164     }
165     printf("\n");
166
167 }
168 //Q9
169 int n,spaces;
170 printf("enter the number of rows:");
171 scanf("%d",&n);
172 if(n%2==0){
173     spaces=n+2;
174 }
175 else{
176     spaces=n+3;
177 }
178 for(int i=1;i<=n;i++){
179     for(int j=1;j<=i;j++){
180         if((i+j)%2==0){
181             printf("0");
182         }
183         else{
184             printf("1");
185         }
186     }
187     for(int j=1;j<=spaces;j++){
188
189         printf(" ");
190
191     }
192     spaces=spaces-2;
193     for(int j=1;j<=i;j++){
194         if(j%2==0){
195             printf("1");
196         }
197         else{
198             printf("0");
199         }
200     }
201 }
202 printf("\n");
203 }
204
205
206 //Q10
207 int rows, coef = 1;
208 printf("Enter the number of rows: ");
209 scanf("%d", &rows);
210 for (int i = 0; i < rows; i++) {
211     for (int space = 1; space <= rows - i; space++) {
212         printf(" ");
213     }
```

```
214     for (int j = 0; j <= i; j++) {
215         if (j == 0 || i == 0)
216             coef = 1;
217         else
218             coef = coef * (i - j + 1) / j;
219         printf("%4d", coef);
220     }
221     printf("\n");
222 }
223
224
225
226
227
228
229
230
231
232 }
```