

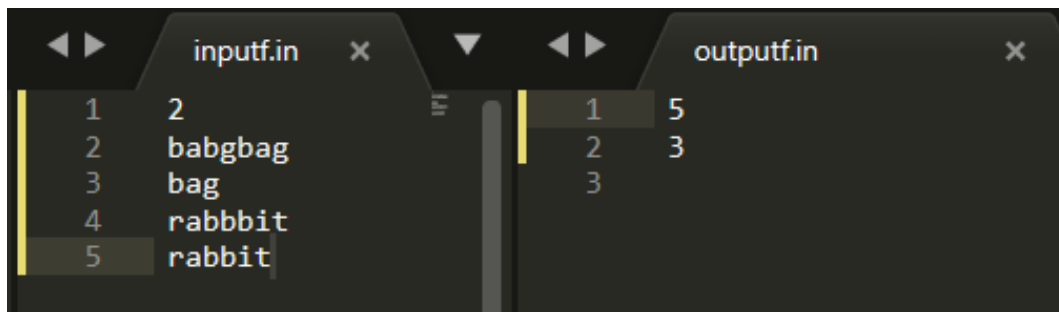
UNIT – 5

1. Distinct Subsequence

Program:

```
1  #include<stdio>
2  #include<string.h>
3  #define MAX(x,y) ( (x) >= (y) ? (x) : (y) )
4  void add(char str1[],char str2[],char res[]){
5      int len1=strlen(str1);
6      int len2=strlen(str2);
7      int reslen=MAX(len1,len2)+1;
8      int i,j,k,carry,tmp;
9      for(int i=0;i<reslen;i++) res[i]='\0';
10     res[reslen]='\0';
11     for(i=len1-1,j=len2-1,k=reslen-1,carry=tmp=0;i>=0||j>=0;k--){
12         tmp=0;
13         if(i>=0) tmp+=str1[i--]-'0';
14         if(j>=0) tmp+=str2[j--]-'0';
15         tmp+=carry;
16         if(tmp>=10)
17             carry=1,tmp-=10;
18         else
19             carry=0;
20         res[k]=tmp+'0';
21     }
22     res[0]='\0'+carry;
23     if(res[0]=='0')
24         for(int i=0;i<reslen;i++)
25             res[i]=res[i+1];
26 }
27 int main(){
28     int n;
29     scanf("%d",&n);
30     while(n--){
31         char S[10001],T[101];
32         char DP[101][10000];
33         scanf("%s%s",S,T);
34         int len=strlen(T);
35         for(int i=1;i<=100;i++){
36             DP[i][0]='\0',DP[i][1]='\0';
37         }
38         DP[0][0]='1',DP[0][1]='\0';
39         for(int i=0;S[i]!='\0';i++){
40             for(int j=len-1;j>=0;j--){
41                 if(S[i]==T[j]){
42                     char res[10000];
43                     add(DP[j+1],DP[j],res);
44                     strcpy(DP[j+1],res);
45                 }
46             }
47         }
48         printf("%s\n",DP[len]);
49     }
```

Output:



The screenshot shows two side-by-side text editors. The left editor, titled 'inputf.in', contains the following text:

```
1 2
2 babgbag
3 bag
4 rabbbbit
5 rabbit
```

The right editor, titled 'outputf.in', contains the following text:

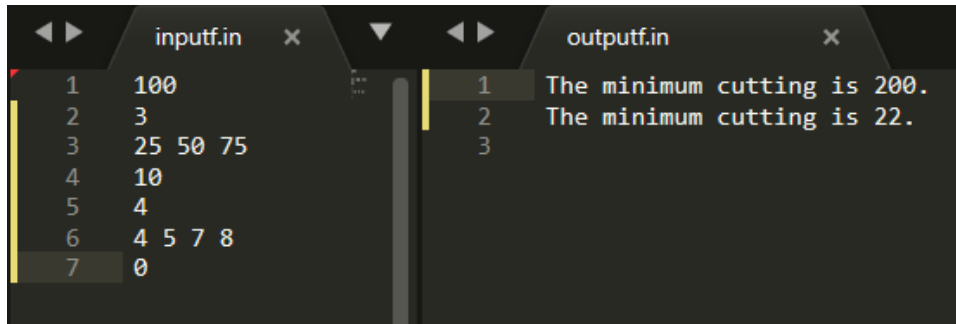
```
1 5
2 3
3
```

2. Cutting Sticks

Program:

```
1  #include<stdio.h>
2  #define MIN(x,y) ( (x) >= (y) ? (y) : (x) )
3  int main(){
4      int L;
5      while(scanf("%d",&L)==1&&L!=0){
6          int DP[52][52];
7          int m[52];
8          int n;
9          int i,j,k,min;
10
11         scanf("%d",&n);
12         m[0]=0;
13         m[n+1]=L;
14         for(i=1;i<=n;i++)
15             scanf("%d",&m[i]);
16         for(i=0;i<=n;i++)
17             DP[i][i+1]=0;
18
19         for(j=2;j<=n+1;j++)
20             for(i=j-2;i>=0;i--){
21                 min=2e9;
22                 for(k=i+1;k<j;k++)
23                     min=MIN(min,DP[i][k]+DP[k][j]+m[j]-m[i]);
24                 DP[i][j]=min;
25             }
26         printf("The minimum cutting is %d.\n",DP[0][n+1]);
27     }
28     return 0;
29 }
```

Output:



The image shows a code editor with two tabs: 'inputf.in' and 'outputf.in'. The 'inputf.in' tab is active and displays a list of numbers. The 'outputf.in' tab is also active and displays the corresponding output for each input line.

inputf.in	outputf.in
1 100	1 The minimum cutting is 200.
2 3	2 The minimum cutting is 22.
3 25 50 75	3
4 10	
5 4	
6 4 5 7 8	
7 0	