

NAME: ROSHAN.A

REG NO: 241801232

GREEDY ALGORITHMS

PROGRAM 1: 1

Answer: (penalty regime: 0 %)

```
1 #include <stdio.h>
2 int main()
3 {
4     int V;
5     scanf("%d", &V);
6     int denominations[] = {1000, 500, 100, 50, 20, 10, 5, 2, 1};
7     int n = sizeof(denominations) / sizeof(denominations[0]);
8     int count = 0;
9     for (int i = 0; i < n; i++)
10    {
11        if (V >= denominations[i])
12        {
13            count += V / denominations[i];
14            V = V % denominations[i];
15        }
16    }
17
18    printf("%d\n", count);
19    return 0;
20 }
```

	Input	Expected	Got	
✓	49	5	5	✓

Passed all tests! ✓

PROGRAM 2: 1

Answer: (penalty regime: 0 %)

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int cmp(const void *a, const void *b)
5 {
6     int x = *(int*)a;
7     int y = *(int*)b;
8     return (x-y);
9 }
10
11 int main() {
12     int n, m;
13     scanf("%d", &n);
14     int g[n];
15     for (int i = 0; i < n; i++)
16     {
17         scanf("%d", &g[i]);
18     }
19     scanf("%d", &m);
20     int s[m];
21     for (int i = 0; i < m; i++)
22     {
23         scanf("%d", &s[i]);
24     }
25     qsort(g, n, sizeof(int), cmp);
26     qsort(s, m, sizeof(int), cmp);
27     int i = 0, j = 0;
28     int content_children = 0;
29     while (i < n && j < m)
30     {
31         if (s[j] >= g[i])
32         {
33             content_children++;
34             i++;
35             j++;
36         }
37         else
38         {
39             j++;
40         }
41     }
42     printf("%d\n", content_children);
43     return 0;
44 }
```

	Input	Expected	Got	
✓	2	2	2	✓
	1 2			
	3			
	1 2 3			

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

PROGRAM 3: 1

Answer: (penalty regime: 0 %)

```
1 #include<stdio.h>
2 #include<stdlib.h>
3 #include<math.h>
4 int cmp_desc(const void *a, const void *b)
5 {
6     return (*(int*)b - *(int*)a);
7 }
8
9 int main() {
10     int n;
11     scanf("%d", &n);
12     int a[n];
13     for (int i = 0; i < n; i++) {
14         scanf("%d", &a[i]);
15     }
16     qsort(a, n, sizeof(int), cmp_desc);
17     int c=0;
18     for(int i=0;i<n;i++)
19     {
20         c+=(pow(n,i)*a[i]);
21     }
22     printf("%d",c);
23 }
```

	Test	Input	Expected	Got	
✓	Test Case 1	3 1 3 2	18	18	✓
✓	Test Case 2	4 7 4 9 6	389	389	✓
✓	Test Case 3	3 5 10 7	76	76	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

PROGRAM 4: 1

Answer: (penalty regime: 0 %)

```
1 #include<stdio.h>
2 #include<stdlib.h>
3 int cmp(const void *a, const void *b)
4 {
5     return (*(int*)a - *(int*)b);
6 }
7
8 int main()
9 {
10    int n;
11    scanf("%d",&n);
12    int a[n],sum=0;
13    for(int i=0;i<n;i++)
14    {
15        scanf("%d",&a[i]);
16    }
17    qsort(a,n,sizeof(int),cmp);
18    for(int i=0;i<n;i++)
19    {
20        sum+=a[i]*i;
21    }
22    printf("%d",sum);
23 }
24 }
```

	Input	Expected	Got	
✓	5 2 5 3 4 0	40	40	✓
✓	10 2 2 2 4 4 3 3 5 5 5	191	191	✓
✓	2 45 3	45	45	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

PROGRAM 5: 1

Answer: (penalty regime: 0 %)

```
1 #include<stdio.h>
2 #include<stdlib.h>
3 int asc(const void *a, const void *b)
4 {
5     return (*(int*)a - *(int*)b);
6 }
7 int desc(const void *a, const void *b) {
8     return (*(int*)b - *(int*)a);
9 }
10 int main()
11 {
12     int n;
13     scanf("%d",&n);
14     int a[n],b[n],sum=0;
15     for(int i=0;i<n;i++)
16     {
17         scanf("%d",&a[i]);
18     }
19     for(int i=0;i<n;i++)
20     {
21         scanf("%d",&b[i]);
22     }
23     qsort(a,n,sizeof(int),asc);
24     qsort(b,n,sizeof(int),desc);
25     for(int i=0;i<n;i++)
26     {
27         sum+=a[i]*b[i];
28     }
29     printf("%d",sum);
30 }
```

	Input	Expected	Got	
✓	3 1 2 3 4 5 6	28	28	✓
✓	4 7 5 1 2 1 3 4 1	22	22	✓
✓	5 20 10 30 10 40 8 9 4 3 10	590	590	✓