NAME: ROSHAN.A

REG NO: 241801232

GREEDY ALGORITHMS

PROGRAM 1: 1

Answer: (penalty regime: 0 %)

```c
#include <stdio.h>
int main()
{
    int V;
    scanf("%d", &V);
    int denominations[] = {1000, 500, 100, 50, 20, 10, 5, 2, 1};
    int n = sizeof(denominations) / sizeof(denominations[0]);
    int count = 0;
    for (int i = 0; i < n; i++)
    {
        if (V >= denominations[i])
        {
            count += V / denominations[i];
            V = V % denominations[i];
        }
    }

    printf("%d\n", count);
    return 0;
}
```

	Input	Expected	Got	
✔	49	5	5	✔

Passed all tests! ✔

PROGRAM 2: 1

Answer: (penalty regime: 0 %)

```c
#include <stdio.h>
#include <stdlib.h>

int cmp(const void *a, const void *b)
{
    int x = *(int*)a;
    int y = *(int*)b;
    return (x-y);
}

int main() {
    int n, m;
    scanf("%d", &n);
    int g[n];
    for (int i = 0; i < n; i++)
    {
        scanf("%d", &g[i]);
    }
    scanf("%d", &m);
    int s[m];
    for (int i = 0; i < m; i++)
    {
        scanf("%d", &s[i]);
    }
    qsort(g, n, sizeof(int), cmp);
    qsort(s, m, sizeof(int), cmp);
    int i = 0, j = 0;
    int content_children = 0;
    while (i < n && j < m)
    {
        if (s[j] >= g[i])
        {
            content_children++;
            i++;
            j++;
        }
        else
        {
            j++;
        }
    }
    printf("%d\n", content_children);
    return 0;
}

```

	Input	Expected	Got	
✔	2 1 2 3 1 2 3	2	2	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

PROGRAM 3: 1

Answer: (penalty regime: 0 %)

```c
#include<stdio.h>
#include<stdlib.h>
#include<math.h>
int cmp_desc(const void *a, const void *b)
{
    return (*(int*)b - *(int*)a);
}

int main() {
    int n;
    scanf("%d", &n);
    int a[n];
    for (int i = 0; i < n; i++) {
        scanf("%d", &a[i]);
    }
    qsort(a, n, sizeof(int), cmp_desc);
    int c=0;
    for(int i=0;i<n;i++)
    {
        c+=(pow(n,i)*a[i]);
    }
    printf("%d",c);
}
```

	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 %)

```c
#include<stdio.h>
#include<stdlib.h>
int cmp(const void *a, const void *b)
{
    return (*(int*)a - *(int*)b);
}

int main()
{
    int n;
    scanf("%d",&n);
    int a[n],sum=0;
    for(int i=0;i<n;i++)
    {
        scanf("%d",&a[i]);
    }
    qsort(a,n,sizeof(int),cmp);
    for(int i=0;i<n;i++)
    {
        sum+=a[i]*i;
    }
    printf("%d",sum);
}

```

	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 %)

```c
#include<stdio.h>
#include<stdlib.h>
int asc(const void *a, const void *b)
{
    return (*(int*)a - *(int*)b);
}
int desc(const void *a, const void *b) {
    return (*(int*)b - *(int*)a);
}
int main()
{
    int n;
    scanf("%d",&n);
    int a[n],b[n],sum=0;
    for(int i=0;i<n;i++)
    {
        scanf("%d",&a[i]);
    }
    for(int i=0;i<n;i++)
    {
        scanf("%d",&b[i]);
    }
    qsort(a,n,sizeof(int),asc);
    qsort(b,n,sizeof(int),desc);
    for(int i=0;i<n;i++)
    {
        sum+=a[i]*b[i];
    }
    printf("%d",sum);
}
```

	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	✔