



*IN THE NAME OF ALLAH, THE GREATEST THE MOST MERCIFUL*

**INTERNATIONAL ISLAMIC UNIVERSITY CHITTAGONG**



**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

## **Lab Assignment 1**

**Matric / ID No.** : C211032  
**ID No. (in words)** : C-Two-One-One- Zero-Three-Two  
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**Semester** : 3rd  
**Section** : 3AM

**Course Code** : CSE-2322  
**Course Title** : Data Structures Lab  
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**Submitted To:**

*Prof. Mohammed Shamsul Alam*

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```
1. #include <bits/stdc++.h>
using namespace std;
int main()
{
    int n;
    cin >> n;
    int arr[n];
    for (int i = 1; i <= n; i++)
    {
        cin >> arr[i];
    }
    for (int i = 1; i < n+1; i++)
    {
        if (arr[1] < arr[i])
        {
            arr[1] = arr[i];
        }
    }
    cout << "Largest Element = " << arr[1];
```

```

return 0;
}

```

```

2. #include <bits/stdc++.h>
using namespace std;

int main()
{
    int a, b, c;
    cin >> a >> b >> c;

    int d = b*b - 4*a*c;
    int r1, r2, r;

    if (d > 0)
    {
        r1 = (-b + sqrt(d)) / (2*a);
        r2 = (-b - sqrt(d)) / (2*a);
        cout << r1 << " " << r2 << endl;
    }
}

```

```

else if (d == 0)
{
    r = -b / (2 * a);
    cout << r << endl;
}
else
{
    cout << "Not real Number.";
    return 0;
}

```

```

3. #include <bits/stdc++.h>
using namespace std;

```

```

int main()
{
    int n, cnt = 0;
    cin >> n;
}

```

```
int arr[n];  
for(int i=1; i<=n; i++)  
{ cin >> arr[i];  
}
```

```
for(int i=1; i<=n; i++)  
{ if (arr[i] >= 40)  
    cnt++;  
}  
cout << "Passed Student: " << cnt;  
return 0;  
}
```

```
4. #include <bits/stdc++.h>  
using namespace std;
```



```
int main()
{
    int n, pos, val;
    cin >> n >> pos >> val;
    int arr[n];
    for (int i = 1; i <= n; i++)
    {
        cin >> arr[i];
    }
    for (int i = n; i >= pos; i--)
    {
        arr[i + 1] = arr[i];
    }
    arr[pos] = val;
    for (int i = 1; i <= n + 1; i++)
    {
        cout << arr[i] << " ";
    }
    return 0;
}
```

```
5. #include <bits/stdc++.h>
using namespace std;
int main()
{
    int n, pos;
    (cin >> n) >> pos;
    int arr[n];
    for (int i = 1; i <= n; i++)
    {
        (cin >> arr[i]);
    }
    for (int i = pos; i < n; i++)
    {
        arr[i] = arr[i+1];
    }
    for (int i = 1; i <= n-1; i++)
    {
        cout << arr[i] << " ";
    }
    return 0;
}
```

```
6. #include <bits/stdc++.h>  
using namespace std;
```

```
int main()
```

```
{ int n, temp;
```

```
  cin >> n;
```

```
  int arr[n];
```

```
  for (int i = 1; i <= n; i++)
```

```
  { cin >> arr[i];  
  }
```

```
  for (int i = 1; i <= n - 1; i++)
```

```
  { for (int j = 1; j <= n - i; j++)
```

```
  { if (arr[j] > arr[j+1])
```

```
  { temp = arr[j];
```

```
    arr[j] = arr[j+1];
```

```
    arr[j+1] = temp;
```



```

    }
    }
    }
    for (int i = 1; i <= n; i++)
    {
        cout << arr[i] << " ";
    }
    return 0;
}

```

```

7. #include <bits/stdc++.h>
using namespace std;
int main()
{
    int n, index, cnt = 0;

```

```
cin >> n;  
int arr[n];  
for (int i = 1; i <= n; i++)  
{ cin >> arr[i];  
}  
int num;  
cin >> num;  
for (int i = 1; i <= n; i++)  
{ if (arr[i] == num)  
{ index = i;  
  cnt++;  
  break;  
}  
}
```

```

if (cnt == 0)
    cout << "Not found";
else
    cout << "Found at index "
        << index;
return 0;
}

```

```

8. #include <bits/stdc++.h>
using namespace std;
int main()
{
    int n;
    cin >> n;
    int arr[n];
}

```

```
for (int i = 1; i <= n; i++)
```

```
{ cin >> arr[i];
```

```
}
```

```
int x;
```

```
cin >> x;
```

```
int l = 1;
```

```
int r = n;
```

```
bool found = 0;
```

```
while (l <= r)
```

```
{ int m = (l + r) / 2;
```

```
  if (arr[m] == x)
```

```
  { found = 1;
```

```
    break;
```

```
}
```

```

    else if (x < arr[m])
    {
        r = m - 1;
    }
    else
    {
        l = m + 1;
    }
}
if (found)
{
    cout << "Found";
}
else
{
    cout << "Not found";
    return 0;
}

```



```
9. #include <bits/stdc++.h>  
using namespace std;
```

```
#define N 32768 //  $2^{15}$ 
```

```
long long prime[N];
```

```
bool sieve sieve(N)
```

```
{ prime[N] = {0}; prime[0] = 1;
```

```
  prime[1] = 1;
```

```
  for(int i=2; i<=sqrt(N); i++)
```

```
  { if(prime[i] == 0)
```

```
    { for(int j=i*i; j<=N; j+=i)  
      prime[j] = 1;
```

```
    }
```

```
  }
```

```
}
```

```

int main()
{
    sieve();
    long long n;
    cin >> n;
    if (prime[n])
        cout << "Not Prime";
    else
        cout << "Prime";
    return 0;
}

```

```
10. #include <bits/stdc++.h>
using namespace std;
int main()
{
    int n;
    FILE *fp;
    fp = fopen("RAND.DAT", "w");
    for(int i=1; i<=100; i++)
    {
        fprintf(fp, "%d", rand());
    }
    fclose(fp);
    fp = fopen("RAND.DAT", "r");
    for(int i=1; i<=100; i++)
    {
        fscanf(fp, "%d", &n);
        cout << n << endl;
    }
    fclose(fp);
    return 0;
}
```