

# National University of Computer and Emerging Sciences



## Laboratory Manual *for* Data Structures Lab

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Section	CS-E
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### Department of Computer Science

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#### Objectives:

In this lab, students will practice:  
1. Time Complexity of Iterative Algorithms

### Question 1

#### 1- Find $T(n)$ and Big-Oh

```
A()
{
    while(n>1)
    {
        n=n/2;
    }
}
```

---

#### 2- Find $T(n)$ and Big-Oh

```
A()
{
    for (i=1; i<=n; i=i*2)
        print("welcome");
}
```

---

#### 3- Find $T(n)$ and Big-Oh

```
A()
{
    for (i=1; i<=n; i=i*3)
        print("welcome");
}
```

---

#### 4- Find $T(n)$ and Big-Oh

```
A()
{
    int i, j, k;
    for (i=n/2; i<=n; i++)
        for (j=1; j<=n/2; j++)
            for (k=1; k<=n; k=k*2)
                {
                    print("welcome");
                }
}
```

---

#### 5- Find $T(n)$ and Big-Oh

```
A()
```

```

{
int i,j,k;
  for (i=n/2; i<=n; i++)
  {
    for (j=1; j<=n; j=2*j)
    {
      for (k=1; k<=n; k=k*2)
        print("welcome");
    }
  }
}

```

```

}
```

---

## 6- Find $T(n)$ and Big-Oh

```

AC()
{
i=1,s=1;

  while (s<=n)
  {
    i++;
    s=s+i;
    print("welcome");
  }
}

```

---

## 7- Find $T(n)$ and Big-Oh

```
A()
{
  int i, j, k, n;

  for (i=1; i<=n; i++)
  {
    for (j=1; j<=i; j++)
    {
      for (k=1; k<=100; k++)
      {
        print("welcome");
      }
    }
  }
}
```

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