Data Science Practical

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Q1) Write a function that computes the running total of list.

Ans. total <- function(list) cumsum(list)
total(c(1,2,3,4,5,6))

```
total <- function(list) cumsum(list)
total(c(1,2,3,4,5,6))
```

```
1 · 3 · 6 · 10 · 15 · 21
```

Q2) Implement matrices addition, subtraction and Multiplication

Ans.
```
m1 = matrix(1:9,3,3)
print("Matrix-1:")
print(m1)
m2 = matrix(1:9,3,3)
print("Matrix-2:")
print(m2)

result = m1 + m2
print("Result of addition")
print(result)

result = m1 - m2
print("Result of subtraction")
print(result)

result = m1 * m2
print("Result of multiplication")
print(result)
```

```
result = m1 * m2
print("Result of multiplication")
print(result)
```

```
[1] "Matrix-1:"
     [,1] [,2] [,3]
[1,]    1    4    7
[2,]    2    5    8
[3,]    3    6    9
[1] "Matrix-2:"
     [,1] [,2] [,3]
[1,]    1    4    7
[2,]    2    5    8
[3,]    3    6    9
[1] "Result of addition"
     [,1] [,2] [,3]
[1,]    2    8   14
[2,]    4   10   16
[3,]    6   12   18
[1] "Result of subtraction"
     [,1] [,2] [,3]
[1,]    0    0    0
[2,]    0    0    0
[3,]    0    0    0
[1] "Result of multiplication"
     [,1] [,2] [,3]
[1,]    1   16   49
[2,]    4   25   64
[3,]    9   36   81
```

Q3) Implement linear search

Ans.
```
linSearch <- function(list, element)
  {
     pos = 1;
     flag = FALSE;
     for (l in list)
     {
        if (l==element)
        {
           flag = TRUE;
           break;
        }
        pos = pos+1;
     }
     if(flag)
     {
```

```
        print(paste("Element found at",pos),quote = FALSE);
    }
    else
    {
        print("Element not found",quote=FALSE);
    }
}
```

linSearch(c(45,12,1,63,50,12),63)

```
linSearch <- function(list, element)
    {
        pos = 1;
        flag = FALSE;
        for (l in list)
        {
            if (l==element)
            {
                flag = TRUE;
                break;
            }
            pos = pos+1;
        }
        if(flag)
        {
            print(paste("Element found at",pos),quote = FALSE);
        }
        else
        {
            print("Element not found",quote=FALSE);
        }
    }

    linSearch(c(45,12,1,63,50,12),63)
```

```
[1] Element found at 4
```