

## Searching

The following array contains the marks in computer science class:

66	78	74	1001	40	78	88	90	33	68
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### Searching

1. Practice: Write a segment of code that will print out all marks.

```
int [] mark = {66,78,74,1001,40,78,88,90,33,68,};  
for (int x=0; x<mark.length; x++)  
    System.out.println(mark[x]);
```

2. Practice: Write a segment of code that will print out every other index starting with 0.

```
int [] mark = {66,78,74,1001,40,78,88,90,33,68,};  
for (int x=0; x<mark.length; x=x+2)  
    System.out.println(mark[x]);
```

3. Practice: Write a segment of code that will print out every other index starting with 1.

```
int [] mark = {66,78,74,1001,40,78,88,90,33,68,};  
for (int x=1; x<mark.length; x=x+2)  
    System.out.println(mark[x]);
```

4. Practice: Calculate the average of the marks in the array

```
int [] mark = {66,78,74,1001,40,78,88,90,33,68};  
int sum = 0;  
for (int x=0; x<mark.length; x++)  
    sum = sum + mark[x];  
int average = sum/mark.length;  
System.out.println("The average of the marks is " + average);
```

5. Find the largest mark

```
int [] mark = {66,78,74,1001,40,78,88,90,33,68};  
int largest = mark[1];  
for (int x=0; x<mark.length; x++)  
    if (largest<mark[x]) {  
        largest = mark[x];  
    }  
System.out.println(largest);
```

6. Find the largest mark. Exclude all invalid marks (i.e. >100)

```
int [] mark = {66,78,74,1001,40,78,88,90,33,68};  
int largest = mark[0];  
for (int x=0; x<mark.length; x++)  
    if ((mark[x]>largest) && (mark[x]<=100)){  
        largest = mark[x];  
    }  
System.out.println(largest);
```

7. Find the lowest mark

```
int [] mark = {66,78,74,1001,40,78,88,90,33,68};
int smallest = mark[0];
for (int x=0; x<mark.length;x++)
    if (smallest>mark[x]) {
        smallest = mark[x];
    }
System.out.println(smallest);
```

8. Print out all marks that are a fail (<50).

```
int [] mark = {66,78,74,1001,40,78,88,90,33,68};
for (int x=0; x<mark.length; x++)
    if (mark[x]<50) {
        System.out.println(mark[x] + " is a fail");
    }
```

9. Print any marks that are divisible by 2.

```
int [] mark = {66,78,74,1001,40,78,88,90,33,68};
for (int x=0; x<mark.length; x++)
    if (mark[x]%2==0)
        System.out.println(mark[x]);
```

10. Print any marks between 80 and 100.

```
int [] mark = {66,78,74,1001,40,78,88,90,33,68};
for (int x=0; x<mark.length; x++)
    if ((mark[x]>=80) && (mark[x]<=100))
        System.out.println(mark[x]);
```

11. Print out the average of all of the passing marks. Exclude all invalid marks (i.e. >100, <0)

```
int [] mark = {66,78,74,1001,40,78,88,90,33,68};
for(int x=0; x<mark.length; x++)
    if ((mark[x]<0) || (mark[x]>100))
        System.out.println(mark[x]);
```

12. Find the mode of the marks.

```
int [] mark = {66,78,74,1001,40,78,88,90,33,68};
for (int x=0; x<mark.length; x++)
    for (int y=1+x; y<mark.length; y++)
        if (mark[x]==mark[y]) {
            System.out.println(mark[x] + " and " + mark[y] + " are the
mode");
        }
}
```

13. Find the median of the marks.

```
int [] mark = {66,78,74,1001,40,78,88,90,33,68};
int temp=0;
boolean fixed = false;
while (fixed==false) {
    fixed =true;
    for (int x=0; x<mark.length-1; x++) {
        if (mark[x]>mark[x+1]) {
```

```
        temp = mark[x];
        mark[x]=mark[x+1];
        mark[x+1]=temp;
        fixed=false;
    }
}
for (int x=0; x<mark.length; x++) {
    System.out.println(mark[x]);
}
int median = (mark.length/2-1);
System.out.println("The median is " + mark[median]);
```