Exercise 2 - Using an array

1. Create and initialize an array with the following values of type integer: {10, -2, 4, 3, -5, 3, 7, 1, 11, 12, 15, 0}
   - Write a program that will print the contents of the entire array.

```
int[] number = {10, -2, 4, 3, -5,  3,  7, 1, 11,  12, 15, 0};
for (int x=0; x<number.length; x++)
   System.out.println(number[x]);
```

   - Write a program that will loop through the array and calculate the sum of the integer and print the sum and the average.

```
double[] number = {10, -2, 4, 3, -5,  3,  7, 1, 11,  12, 15, 0};
double sum=0;
int track=0;
while (track<number.length) {
       sum=sum+number[track];
       track++;
}
double average = sum/track;
System.out.println("The sum is " + sum );
System.out.println("The average is " + average);
```

2. Write a program that uses an array to store the last names of eight students. Write a program that prompts for the names and stores it in the array. The program will then print the contents of the array.

```
Scanner input = new Scanner(System.in);
String[] names = new String[8];
int student=0;
for (;student<names.length; student++) {
       System.out.println("What is the name of student number " +
       student);
       names [student] = input.next();
}
System.out.println("The students name include:");
for (int x=0; x<student; x++)
       System.out.println(names[x]);
```

3. Write a program that continually prompts for 16 integer values and stores them in an array called 'numbers'. Print out the entire array.

```
Scanner input = new Scanner (System.in);
int[] numbers = new int [16];
int track=0;
for (;track<numbers.length; track++) {
       System.out.println("Enter an integer");
       numbers[track] = input.nextInt();
}
```

```
System.out.println("The integers entered include:");
for (int x=0; x<track; x++) {
	System.out.println(numbers[x]);
}
```

- Modify the above program so that the numbers are printed in the reverse order. (Do not rearrange the values in the array itself)

```
Scanner input = new Scanner (System.in);
int[] numbers = new int [16];
int track=0;
for (;track<numbers.length; track++) {
	System.out.println("Enter an integer");
	numbers[track] = input.nextInt();
}
System.out.println("The integers entered include:");
for (int x=15; x>=0;) {
	System.out.println(numbers[x]);
	x--;
}
```

4. Write a program to read a set of 10 real numbers storing them in an array called PRICE so that the first value is stored in PRICE[1], the second in PRICE[2] etc. Output the contents of PRICE.

```
Scanner input = new Scanner(System.in);
double [] price = new double[10];
int track=0;
for (; track<price.length; track++) {
	System.out.println("Enter price " + track);
	price [track] = input.nextDouble();
}
System.out.println("The contents of price include:");
for (int x=0;x<track;) {
	System.out.println(price[x]);
	x++;
}
```

- Modify your program to swap the contents of PRICE in reverse order so that the value of PRICE[1] IS STORED IN PRICE[10], the value of PRICE[2] in PRICE[9] etc. Output the new PRICE.

```
Scanner input = new Scanner(System.in
double [] price = new double[10];
int track=0;
for (; track<price.length; track++) {
	System.out.println("Enter price " + track);
	price [track] = input.nextDouble();
}
track--;
System.out.println("The contents of price include:");
for (int x=0;x<=track;) {
	System.out.println(price[track]);
```

```
        track--;
```

5. Write a program that simulates the speed dial function on your telephone at home. Your program will set up a menu with the following options: 1 – enter a number; 2 – dial a number; and 3- exit. Each phone number is stored in an element of an array numbered 0 to 9.
    - If 1 is selected, the number will prompt for the speed-dial location (0 to 9), and prompt for the telephone number to be stored in that element.
    - If 2 is selected the number will prompt for the speed-dial number and output the message "Dialing….." in addition to the telephone number stored in that element. If there is no number stored in that location, output the message "There is no current number stored in ….".
    - If 3 is selected the program will exit.

```
Scanner input = new Scanner(System.in);
int [] dial = new int[9];
int option;
int speeddial1 = 0;
int speeddial2;
do {
System.out.println("Option 1: Enter a number");
System.out.println("Option 2: Dial a number");
System.out.println("Option 3: exit");
System.out.println("Enter option:");
option = input.nextInt();
if (option==1) {
       System.out.println("Enter the speed-dial location (0 to 9");
       speeddial1 = input.nextInt();
       System.out.println("Enter the telephone number:");
       dial[speeddial1] = input.nextInt();
}
if (option==2) {
       System.out.println("Enter the speed-dial number:");
       speeddial2 = input.nextInt();
if (speeddial2==speeddial1) {
       System.out.println("Dialing the number " + dial[speeddial2]);
}
}

else if (option==3) {
       System.out.println("Exit");
}
}
while (option!=3);
```