Array Tracings

1. **Consider the following code:**

```
public class ArrayTraceA
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int index1 = 0, index2 =0;
    index1 = 1;
    while (index1 < 10){
    myArray[index1] = index1 + 3;
    index2 = 1;
      while (index2 < index1 ){
        myArray[index1] = myArray[index1] + myArray[index2] -
index1;
        index2 = index2 + 1;
    }
    System.out.println(myArray[index1]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output?

2. **Consider the following code:**

```
public class ArrayTraceB
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int index1 = 0, index2 =0;
    index1 = 1;
    while (index1 < 10){
    myArray[index1] = index1 + 4;
    index2 = 1;
      while (index2 < index1 ){
        myArray[index1] = myArray[index1] + myArray[index2] -
index1;
        index2 = index2 + 1;
    }
    System.out.println(myArray[index1]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output?

3.

Consider the following code:

```
public class Quiz5a
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int [] b;
    int index1 = 0, index2 =0;
    index1 = 1;
    b =  myArray;
    while (index1 < 10){
    myArray[index1] = index1 + 2;
    index2 = 1;
      while (index2 < index1 ){
       myArray[index1] = b[index1] + myArray[index2] - index1;
        index2 = index2 + 1;
    }
    System.out.println(myArray[index1]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output of the program?

4

Consider the following code:

```
public class Quiz5b
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int [] b;
    int index1 = 0, index2 =0;
    index1 = 1;
    b =  myArray;
    while (index1 < 10){
    myArray[index1] = index1 + 4;
    index2 = 1;
      while (index2 < index1 ){
        myArray[index1] = b[index1] + myArray[index2] -
index1;
        index2 = index2 + 1;
    }
    System.out.println(myArray[index1]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output?

5.

Consider the following code:

```
public class ArrayTraceA
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int index1 = 0, index2 =0;
    index1 = 1;
    while (index1 < 10){
    myArray[index1] = index1 + 3;
    index2 = 1;
      while (index2 < index1 ){
        myArray[index1] = myArray[index1] + myArray[index2] -
index1;
        index2 = index2 + 1;
    }
    System.out.println(myArray[index1]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output?

6. Consider the following code:

```
public class ArrayTraceB
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int index1 = 0, index2 =0;
    index1 = 1;
    while (index1 < 10){
    myArray[index1] = index1 + 4;
    index2 = 1;
      while (index2 < index1 ){
        myArray[index1] = myArray[index1] + myArray[index2] -
index1;
        index2 = index2 + 1;
    }
    System.out.println(myArray[index1]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output?

7. Consider the following code:

```
public class Quiz5a
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int [] b;
    int index1 = 0, index2 =0;
    index1 = 1;
    b =  myArray;
    while (index1 < 10){
    myArray[index1] = index1 + 1;
    index2 = 1;
    while (index2 < index1 ){
      myArray[index1] = b[index2 - 1] + myArray[index2] -
index1;
      index2 = index2 + 1;
    }
    System.out.println(myArray[index2]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output of the program?

8. **Consider the following code:**

```
public class Quiz5b
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int [] b;
    int index1 = 0, index2 =0;
    index1 = 1;
    b =  myArray;
    while (index1 < 10){
    myArray[index1] = index1 + 3;
    index2 = 1;
    while (index2 < index1 ){
      myArray[index1] = b[index2 - 1] + myArray[index2] -
index1;
      index2 = index2 + 1;
    }
    System.out.println(myArray[index2]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output of the program?

9. **Consider the following code:**

```
public class Quiz5a
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int [] b;
    int index1 = 0, index2 =0;
    index1 = 1;
    b =  myArray;
    while (index1 < 10){
    myArray[index1] = index1 + 2;
    index2 = 1;
      while (index2 < index1 ){
        myArray[index1] = b[index1] + myArray[index2] -
index1;
        index2 = index2 + 1;
    }
    System.out.println(myArray[index1]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output of the program?

10. **Consider the following code:**

```
public class Quiz5b
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int [] b;
    int index1 = 0, index2 =0;
    index1 = 1;
    b =  myArray;
    while (index1 < 10){
    myArray[index1] = index1 + 4;
    index2 = 1;
      while (index2 < index1 ){
        myArray[index1] = b[index1] + myArray[index2] -
index1;
        index2 = index2 + 1;
    }
    System.out.println(myArray[index1]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output of the program?

11.

Consider the following code:

```
public class Quiz5a
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int [] b;
    int index1 = 0, index2 =0;
    index1 = 1;
    b =  myArray;
    while (index1 < 10){
    myArray[index1] = index1 + 2;
    index2 = 1;
      while (index2 < index1 ){
        myArray[index1] = b[index1] + myArray[index2] -
index1;
        index2 = index2 + 1;
    }
    System.out.println(myArray[index1]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output of the program?

12.

Consider the following code:

```
public class Quiz5b
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int [] b;
    int index1 = 0, index2 =0;
    index1 = 1;
    b =  myArray;
    while (index1 < 10){
    myArray[index1] = index1 + 4;
    index2 = 1;
      while (index2 < index1 ){
        myArray[index1] = b[index1] + myArray[index2] -
index1;
        index2 = index2 + 1;
    }
    System.out.println(myArray[index1]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output of the program?

13.

Consider the following code:

```
public class Quiz5a
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int [] b;
    int index1 = 0, index2 =0;
    index1 = 1;
    b =  myArray;
    while (index1 < 10){
    myArray[index1] = index1 + 1;
    index2 = 1;
    while (index2 < index1 ){
      myArray[index1] = b[index2 - 1] + myArray[index2] -
index1;
      index2 = index2 + 1;
    }
    System.out.println(myArray[index2]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output of the program?

14.

Consider the following code:

```
public class Quiz5b
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int [] b;
    int index1 = 0, index2 =0;
    index1 = 1;
    b =  myArray;
    while (index1 < 10){
    myArray[index1] = index1 + 3;
    index2 = 1;
    while (index2 < index1 ){
      myArray[index1] = b[index2 - 1] + myArray[index2] -
index1;
      index2 = index2 + 1;
    }
    System.out.println(myArray[index2]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output of the program?

15.

Consider the following code:

```
public class ArrayTraceA
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int index1 = 0, index2 =0;
    index1 = 1;
    while (index1 < 10){
    myArray[index1] = index1 + 3;
    index2 = 1;
      while (index2 < index1 ){
        myArray[index1] = myArray[index1] + myArray[index2] -
index1;
        index2 = index2 + 1;
    }
    System.out.println(myArray[index1]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output?

16.

Consider the following code:

```
public class ArrayTraceB
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int index1 = 0, index2 =0;
    index1 = 1;
    while (index1 < 10){
    myArray[index1] = index1 + 4;
    index2 = 1;
      while (index2 < index1 ){
        myArray[index1] = myArray[index1] + myArray[index2] -
index1;
        index2 = index2 + 1;
    }
    System.out.println(myArray[index1]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output?

17. **Consider the following code:**

```
public class ArrayTraceA
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int index1 = 0, index2 =0;
    index1 = 1;
    while (index1 < 10){
    myArray[index1] = index1 + 3;
    index2 = 1;
      while (index2 < index1 ){
        myArray[index1] = myArray[index1] + myArray[index2] - index1;
        index2 = index2 + 1;
    }
    System.out.println(myArray[index1]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output?

18. Consider the following code:

```
public class ArrayTraceB
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int index1 = 0, index2 =0;
    index1 = 1;
    while (index1 < 10){
    myArray[index1] = index1 + 4;
    index2 = 1;
      while (index2 < index1 ){
        myArray[index1] = myArray[index1] + myArray[index2] - index1;
        index2 = index2 + 1;
    }
    System.out.println(myArray[index1]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output?

19.

Consider the following code:

```
public class Quiz5a
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int [] b;
    int index1 = 0, index2 =0;
    index1 = 1;
    b =  myArray;
    while (index1 < 10){
    myArray[index1] = index1 + 2;
    index2 = 1;
      while (index2 < index1 ){
        myArray[index1] = b[index1] + myArray[index2] - index1;
        index2 = index2 + 1;
    }
    System.out.println(myArray[index1]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output of the program?

20.

Consider the following code:

```
public class ArrayTraceB
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int index1 = 0, index2 =0;
    index1 = 1;
    while (index1 < 10){
    myArray[index1] = index1 + 4;
    index2 = 1;
      while (index2 < index1 ){
        myArray[index1] = myArray[index1] + myArray[index2] - index1;
        index2 = index2 + 1;
    }
    System.out.println(myArray[index1]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output?

21.

Consider the following code:

```
public class Quiz5a
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int [] b;
    int index1 = 0, index2 =0;
    index1 = 1;
    b =  myArray;
    while (index1 < 10){
    myArray[index1] = index1 + 1;
    index2 = 1;
    while (index2 < index1 ){
      myArray[index1] = b[index2 - 1] + myArray[index2] - index1;
      index2 = index2 + 1;
    }
    System.out.println(myArray[index2]);
    index1 = index1 + 1;
    }
  }
}
```

What is the output of the program?

22.

Consider the following code:

```
public class Quiz5a
{
  public static void main(String args[])
  {
    int [] myArray = new int[10];
    int [] b;
    int index1 = 0, index2 =0;
    index1 = 1;
    b =  myArray;
    while (index1 < 10){
    myArray[index1] += myArray[index2%10]+ 2;
    index2 = 1;
      while (index2 < index1 ){
        myArray[index1] = b[index2%7]  - index1;
        index2 = (index2++) + 1;
    }
    System.out.println(myArray[index1]);
    index1 = (++index1) + 1;
    }
  }
}
```

What is the output of the program?

23.

```
public class Quiz8a{
```

```
  public static void main(String [] args){
    int I = 0;
    int j = 1;
    String [ ][ ] twoD1  = new String [3][3];
    int [ ][ ] twoD2  = new int [3][3];
    twoD1[0][0] = "b";
    twoD1[0][1] = "c";
    twoD1[0][2] = "d";
    twoD1[1][0] = "e";
    twoD1[1][1] = "p";
    twoD1[1][2] = "x";
    twoD1[2][0] = "y";
    twoD1[2][1] = "g";
    twoD1[2][2] = "h";
    twoD2[0][0] = 11;
    twoD2[0][1] = 12;
    twoD2[0][2] = 32;
    twoD2[1][0] = 23;
    twoD2[1][1] = 12;
    twoD2[1][2] = 9;
    twoD2[2][0] = 26;
    twoD2[2][1] = 32;
    twoD2[2][2] = 44;
    While (i < 3){
      j = 2;
      while (j >= 0){
        System.out.println(twoD1[i][j] + twoD2[j][i]);
        j--;
      }
      ++i;
    }
  }
}
```

Write the output:

24.

```
public class Quiz7a{
```

```
  public static void main(String [] args){
    int i = 0;
    int j = 1;
    String [ ][ ] twoD1  = new String [3][3];
    int [ ][ ] twoD2  = new int [3][3];
    twoD1[0][0] = "x";
    twoD1[0][1] = "c";
    twoD1[0][2] = "f";
    twoD1[1][0] = "k";
    twoD1[1][1] = "u";
    twoD1[1][2] = "w";
    twoD1[2][0] = "z";
    twoD1[2][1] = "g";
    twoD1[2][2] = "h";
    twoD2[0][0] = 15;
    twoD2[0][1] = 7;
    twoD2[0][2] = 20;
    twoD2[1][0] = 30;
    twoD2[1][1] = 11;
    twoD2[1][2] = 18;
    twoD2[2][0] = 22;
    twoD2[2][1] = 16;
    twoD2[2][2] = 5;
    while (i < 3){
      j = 2;
      while (j >= 0){
        System.out.println(twoD1[i][j] + twoD2[j][i]);
        j--;
      }
      ++i;
    }
  }
}
```

Write the output:

25.

```
public class Quiz8a{
  public static void main(String[] args){
    //    Create matrices
    double[][] matrixA = new double[2][3];
    double[][] matrixB = new double[3][2];
    double[][] matrixC = new double[2][2];

    //    Fill Matrices
    matrixA[0][0] = 3.0;
    matrixA[0][1] = 2.0;
    matrixA[0][2] = -1.0;
    matrixA[1][0] = 0.0;
    matrixA[1][1] = 4.0;
    matrixA[1][2] = 6.0;
    matrixB[0][0] = 1.0;
    matrixB[0][1] = 0.0;
    matrixB[1][0] = 5.0;
    matrixB[1][1] = 3.0;
```

```
    matrixB[2][0] = 6.0;
    matrixB[2][1] = 4.0;

    //   Multiplication  C =A.B
    for(int i=0; i<2; i++){
      for(int j=0; j<2; j++){
        for(int k=0; k<3; k++){
          matrixC[i][j] += matrixA[i][k]*matrixB[k][j];
          System.out.println(matrixC[i][j]);
        }
      }
    }
  }
}
```

Write the output:

26.

```
public class Quiz8b{
  public static void main(String[] args){
    //    Create matrices
    double[][] matrixA = new double[2][3];
    double[][] matrixB = new double[3][2];
    double[][] matrixC = new double[2][2];

    //    Fill Matrices
    matrixA[0][0] = 2.0;
    matrixA[0][1] = 3.0;
    matrixA[0][2] = -2.0;
    matrixA[1][0] = 1.0;
    matrixA[1][1] = 2.0;
    matrixA[1][2] = 3.0;
    matrixB[0][0] = -1.0;
    matrixB[0][1] = 2.0;
    matrixB[1][0] = 3.0;
    matrixB[1][1] = 2.0;
    matrixB[2][0] = 5.0;
    matrixB[2][1] = 6.0;

    //   Multiplication  C =A.B
    for(int i=0; i<2; i++){
      for(int j=0; j<2; j++){
        for(int k=0; k<3; k++){
          matrixC[i][j] += matrixA[i][k]*matrixB[k][j];
          System.out.println(matrixC[i][j]);
        }
      }
    }
  }
}
```

Write the output: