Arrays on stack/heap

Stack

(local variables)

0xBE8A0D40

Memory space is allocated for an integer (32 bits) variable ('age') on the stack. 0x00000000

Heap (objects & arrays)

(age)

```
static void Main(string[] args)
    int age;
```

Stack

(local variables)

0xBE8A0D40

OxOa = 10(decimal). Intel uses 'little endian': least significant byte first (at front). (age) 0x0a000000

```
Heap
(objects & arrays)
```

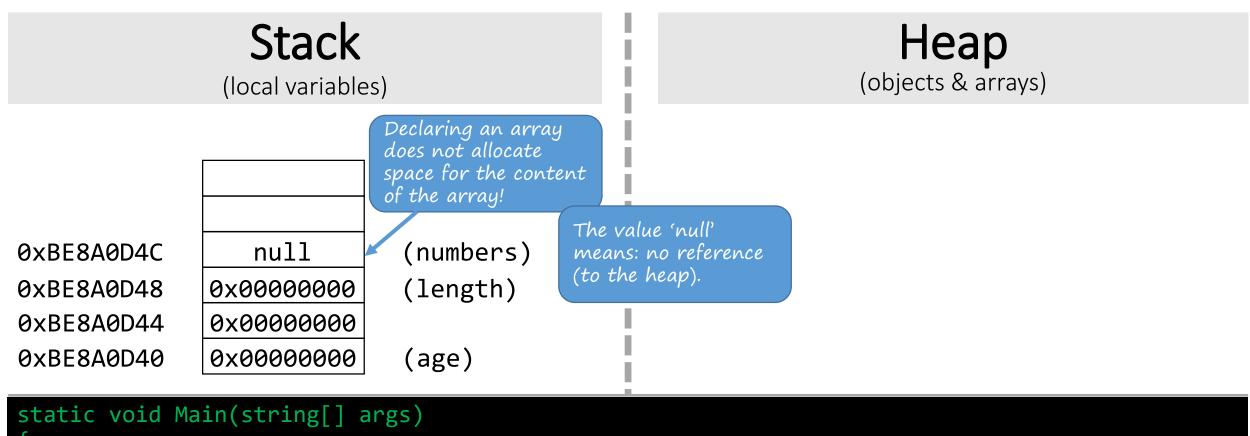
```
static void Main(string[] args)
    int age;
    age = 10;
```

Stack (local variables) A double is 64 bits, twice as 'big' as an integer variable. 0xBE8A0D48 0x00000000 (length) 0xBE8A0D44 0x00000000 (age)

```
Heap (objects & arrays)
```

```
static void Main(string[] args)
{
   int age;
   double length;

And what about arrays on stack?
```



```
int age;
  double length;
  int[] numbers;
}
```

Stack (local variables) 0xBE8A0D4C 0x1A0834C0 (numbers)

0x00000000

0x00000000

0x00000000

0xBE8A0D48

0xBE8A0D44

0xBE8A0D40

(length)

(age)

Heap

(objects & arrays)

```
0x1A0834C8
0x1A0834C4
0x1A0834C0
```

```
0x00000000
0x000000000
0x000000000
```

(numbers[2])
(numbers[1])
(numbers[0])

```
static void Main(string[] args)
{
   int age;
   double length;
   int[] numbers;

   numbers = new int[3];
   numbers[0] = 1;
   numbers[1] = 2;
   numbers[2] = 3;
}

Not until 'new ...'
   memory space will
   be allocated for the
   array elements.
```

Stack (local variables)

Heap

(objects & arrays)

```
static void Main(string[] args)
{
   int age;
   double length;
   int[] numbers;

   numbers = new int[3];
   numbers[0] = 1;
   numbers[1] = 2;
   numbers[2] = 3;
}
```

Stack (local variables)

0x00000000

0x00000000

0x00000000

0xBE8A0D4C

0xBE8A0D48

0xBE8A0D44

0xBE8A0D40

(numbers) 0x1A0834C0 (length)

(age)

Heap

(objects & arrays)

```
(numbers[2])
0x1A0834C8
              0x00000000
                            (numbers[1])
0x1A0834C4
               0x00000002
                            (numbers[0])
0x1A0834C0
              0x00000001
```

```
static void Main(string[] args)
    int age;
    double length;
    int[] numbers;
    numbers = new int[3];
    numbers[0] = 1:
   numbers[1]
    numbers[2]
```

Stack

(local variables)

```
0xBE8A0D4C
                            (numbers)
              0x1A0834C0
                            (length)
0xBE8A0D48
              0x00000000
0xBE8A0D44
              0x00000000
                            (age)
0xBE8A0D40
              0x00000000
```

Heap

(objects & arrays)

```
(numbers[2])
0x1A0834C8
              0x00000003
               0x00000002
                            (numbers[1])
0x1A0834C4
              0x00000001
                            (numbers[0])
0x1A0834C0
```

```
static void Main(string[] args)
    int age;
    double length;
    int[] numbers;
    numbers = new int[3];
    numbers[0] = 1;
    numbers[1] = 2;
    numbers[2]
```