ARRAYS

- Collection – Size(N)
- Ordered – Index [0, N-1]
- Datatype – Char → String
  Number
  } Primitive data types

Array of Student Records

Attributes:
- ID number
- Score number

```
StudentRecord   .FILL   1275   ] StudentRecord[0]
                .FILL   92     ]
                .FILL   3271   ] StudentRecord[i]
                .FILL   88     ]
                .
                .
                .
```

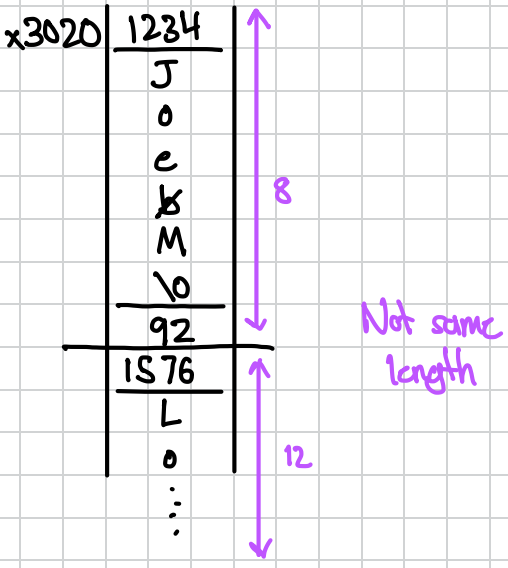
R1 ← StudentRecord[i].score

x3000

```
        LEA  R0, StudentRecord
        LDR  R1, R0, #3
```

Attributes:
- ID number
- Name string
- Score number

```
x3020
StudentRecord   .FILL 1234
                .FILL "Joe M"
                .FILL 92
                .FILL 1576
                .FILL "Longish P"
                .FILL 88
```



```
x3020
StudentRecord   .FILL  1234
                .FILL  JoeName
                .FILL  92
                .FILL  1576
                .FILL  LongName
                .FILL  88

x4000
JoeName         .STRINGZ "Joe M"
LongName        .STRINGZ "Longish P"
```

ARRAY SEARCH: Given an Array of students with name (initials) and score (number) find the student with the highest score

How to find the end/size of an array?

1. it is given
2. marker at the end (Sentinel)
   - String marker is ø
   - Numbers [0, 100] marker is -1
   - Student Record marker ø

SUBROUTINES

Are a block of code that implements a functionality and can be implemented repeatedly

```
ORR
    NOT R0, R0
    NOT R1, R1
    AND R2, R0, R1      (a'b')'
    NOT R2, R2
    JMP R7

Call .ORIG x3000
    LD R0, A
    LD R1, B
    JSR ORR
    ST R2, C
    HALT

A   .FILL ____
B   .FILL ____
```