B2 • Discussion #10 • 2021-04-02

Make sure your camera is on! ☺

Announcements

- Final Project Proposal is due Monday, 04/05 by 10am EDT
  - → group submission feature on Gradescope
  - → project teams are set, no individual submissions
- Today is the last day to drop a course @ BU
- Reminder: you can use any C compiler you want now
- Exam 3 is three weeks from today
- Lecture – please do not just look at the slides; you should also be reading the text
- Look at the syllabus to see what we are covering on a given day – you don't ever need to guess (or use the calendar feature on BB)
- Note on programming style:
  - declare all variables together in functions, the first thing in the body, then have the statements
  - no global variables, ever.
  - use the for loop as the counted loop, while/do while as conditional loops
- Final note on programming style:
  - declaring loop/iterator variables in a for loop has never been taught in EK125 and it's not in the text
  - we've decided that it will be acceptable since it seems to be incorporated into modern C compilers (at least as of the standard C11)
  - so for example,

    for (int i = 0; i ...)

    will be acceptable in class

Review of Material

- Data structures: arrays, strings, structs
- Typedef

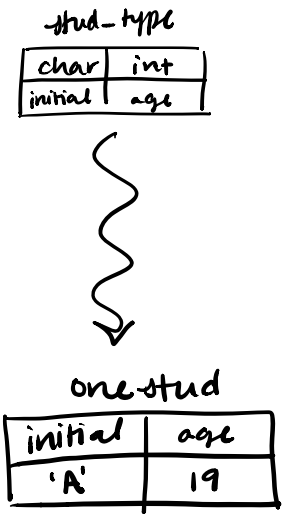
ENG EK 125 Fall 2020 Modified Quiz # 7

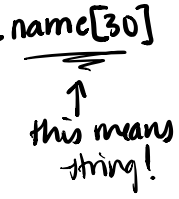
Typing this into a C program is not recommended, as it will likely take you too much time and you will run out of time. This must be your own work; you may not communicate with anyone while taking this quiz. Upload a one or two page pdf to Gradescope by 5:00pm EST; points will be deducted for late submissions.

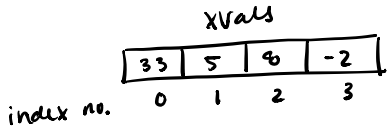
Under the program, **show what the output would be**.

```
#include <stdio.h>
#include <string.h>

typedef struct
{
    char initial;
    int age;
} stud_type;


int main()
{
    int number = 11,
        xvals[4] = {33, 5, 8, -2};
    float result = 2.5;
    char name[30] = "Hamish";
    stud_type onestud = {'A', 19};

    printf("xvals[1] is %d\n", xvals[1]);

    printf("The length of name is %d\n", strlen(name));

    printf("The member is %c\n", onestud.initial);


    return 0;
}
```

typedef example!







Output:

xvals[1] is 5
The length of name is 6
The member is A

Making an array

```
#include <stdio.h>

#define ROWS 2
#define COLS 3

int main()
{
   int arr[ROWS][COLS]={{1,2,3},{4,5,6}};
   int i;

   for (i=0; i<ROWS; i++)
    {
       for (j=0; j<COLS; j++)
        {
          printf("%d  ", arr[i][j]);
        }
       printf("\n");
    }
  return 0;
}
```

```
1   2   3
4   5   6
```

↳ example of columns (j) in the outer loop

→ average of each column

```
printf("The average of each column is:\n");
sum = 0;

for (j=0; j<COLS; j++)
 {
    for (i=0; i<ROWS; i++)
     {
        sum = sum + arr[i][j];
     }
    ave = sum/ROWS;
    printf("%.f\n", ave);
}
```

(*) Average of each row?
→ same procedure but
i is outer loop,
j is inner loop,
ave = sum/COLS

Typedef

```
typedef struct
{
    char id;
    float num;
} mystruct
```

```
int main()
{
   mystruct leahsstruct;
    :
return 0;
}
```

```
typedef struct
{
   limb arm;
   limb leg;
   other head;
   other tummy;
} human

 int main()
{
   human adam;
   human eve;

   adam.head = brain;
   adam.tummy = empty;

    :
return 0;
}
```