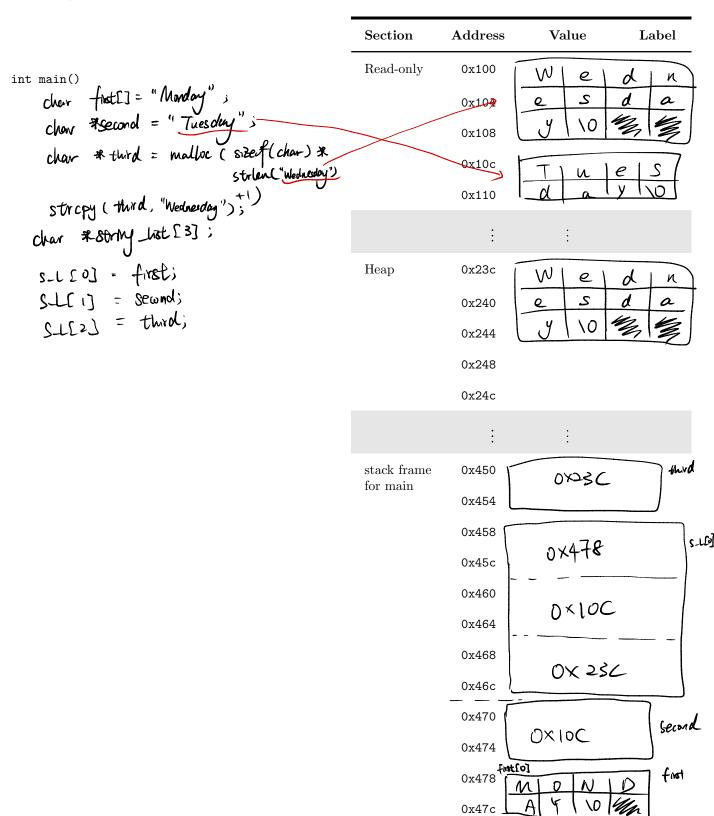
CSC209H Worksheet: Strings

1. Write a program that declares 3 strings. The first named first should be set to the value "Monday", and be stored on the stack frame for main. second should be a string literal with the value "Tuesday". third should have value "Wednesday" and be on the heap. The pointers for second and third will be in stack frame for main. Then beside it, draw the memory model for your program after all three strings have been created. Using the starter code posted on the course website, type your program into your computer (or work with a friend on their computer.)



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- 2. Add to your program so that it declares an array string_list of 3 pointers to char and point the elements to first, second, and third, respectively. So now you have an array of strings. Where is the memory allocated for this array? Add to your memory model diagram as well. Once you have this complete, show it to a TA or the professor and ask for the next handout which has the solutions to questions 1 and 2 and a place to answer question 3.
- 3. Now, add a new function build_month_list that allocates, initializes and returns an array of 3 strings with the values "January", "February", and "March". All the strings need to be mutable, so that the main function can shorten them. Remember to uncomment the code in main that tests that build_month_list is testable.
- 4. If you are finished (or if you can't figure out why your code isn't working), draw a memory diagram illustrating your program at the moment just before build_month_list returns.

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

// Part 3: Implement build_month_list.
```

```
int main() {
   // Part 1: Declare and initialize first, second, and third.
   char first[7] = "Monday";
   char *second = "Tuesday";
   char *third = malloc(10 * sizeof(char));
   //third = "Wednesday"; <- DOES NOT WORK make sure you understand why!</pre>
   strcpy(third,"Wednesday");
   printf("%s %s %s\n", first, second, third);
   // Part 2: Declare and initialize string_list.
   char *string_list[3];
   string_list[0] = first;
   string_list[1] = second;
   string_list[2] = third;
   printf("\%s \%s \%s\n", string_list[0], string_list[1], string_list[2]);\\
   char **months = build_month_list();
   for(int i = 0; i < 3; i++) {
        printf("%s ", months[i]);
   printf("\n");
   for(int i = 0; i < 3; i++) {
       months[i][3] = '\0';
        printf("%s ", months[i]);
   printf("\n");
return 0;
```