

CS 2100: Data Structures

Homework 2

This is a homework you must complete individually. Please use git to submit your solution.

If you wish to hand in a paper copy of problem 1, that is fine, but be sure to get it to me by the due date.

1. (a) Fill in the diagram below to represent the underlying memory configuration that is present after the following commands are executed:

```
char a('A');
char *b = new char('B');
char &c(a);
char d(c);
char *f = &d;
```

variable name	memory contents	memory address
		281
		282
		283
		284
		285
		286
		287
		288
		289
		290

- (b) Now use the diagram below to update the memory configuration from part (a) after the following 5 commands are executed.

```
b = 'X';
*f = 'Y';
char *g = b;
b = f;
a = 'W';
```

variable name	memory contents	memory address
		281
		282
		283
		284
		285
		286
		287
		288
		289
		290

2. Write a class `Date` that has 3 pieces of private data, `month`, `day`, and `year`, all of type `int`. Your constructor should allow optional input parameters to set these values, with the default being 1/1/2000 if no inputs are specified.

Create 3 public accessor functions to print the data in 3 possible formats:

```
1/25/2018
25 January 2018
January 25, 2018
```

In addition, create 3 public mutator functions to change the month, year and day.

Finally, write a main to test each of your functions, by created at least 3 different `Date` objects, changing their values, and printing them in the various formats.