IC221 System Programming
Spring 2015 NAME:_____
HW4

COLLABORATOR(S):_____

4/3/0 1. What is missing from the array declaration below for **string**? Explain why it is needed.

```
char string[] = {'B','e','a','t',' ','A','r','m','y'};
```

6/4/2/0 2. For **string** declaration:

```
char string[] = "Crash Airforce"
```

What is the length of the string? [ ]

How much memory (in bytes) is required to store the string? [ ]

Explain [ ]

3. What is the output of the code snippet below, and explain:

```
char string[] = {'B','e','a','t',' ','A','r','m','y','\0',
                 'C','r','a','s','h',' ','A','i','r','f','o','r','c','e','\0'};
printf("%s",string);
```

4/2/0 [ ]

6/4/2/0 4. Complete the program below to copy **str1** to **str2**.

```
int main(){

   char str1[]="I love IC221!";

   char str2[ ]; //declare str2

   int i;

   //copy str1 to str2

   for(i=0 ;  ;  i++){

   }

}
```

__/20

NAME: _____

5. Use the Unix manual pages to look and describe the following **string.h** library functions and its arguments:

4/2/0 a) strcpy ( )

4/2/0 b) strncpy ( )

4/2/0 c) strchr ( )

4/2/0 d) strrchr ( )

4/2/0 e) strcat ( )

4/2/0 f) strncat ( )

4/2/0 g) strfry ( )

2/1/0 6. For the string library functions contain an "n" as in **strncpy(),** explain why specify the length of the destination string is important?

__/30

NAME: _____

4/2/0 7. What is the output of the following program? And what index in **darray** does **p[2]** refer to? Give your answer as the **i,j** in **darray[i][j]**.

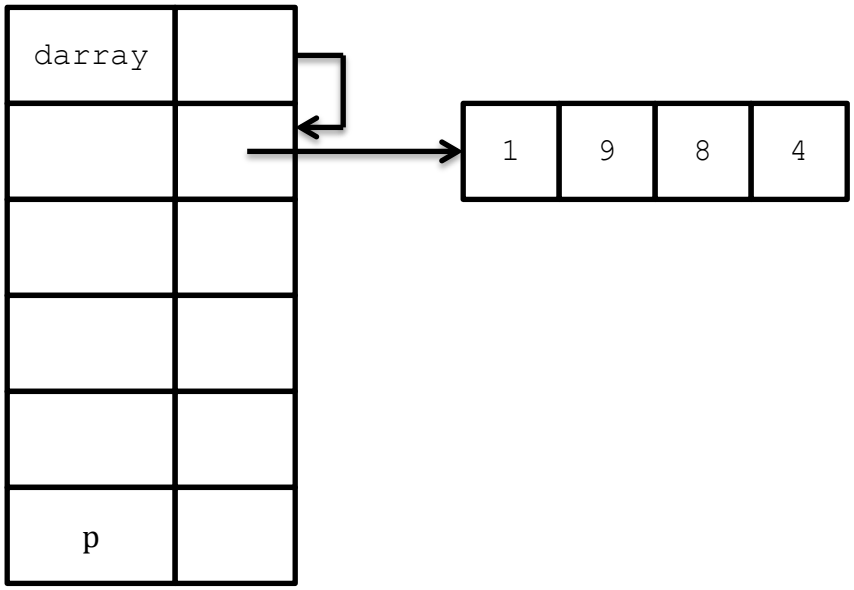
```
int main(){
     int darray[][4] = {{1, 9, 8, 4},
                        {1, 8, 9, 4},
                        {2, 0, 1, 7},
                        {3, 4, 5, 8}};

      int * p = &(darray[1]);

     printf("%d",p[2]);

}
```

7/5/3/0 8. For the above program, complete the stack diagram at the end of **main()**. Fill in missing values and data segments.



5/3/0 9. Convert the following double array dereference with [ ] to one without [ ]

darray[3][0]

8/6/3/0 10. Write a for loop to iterate over the **darray** to print a 4x4 grid of numbers, much like it is presented in question 7 above.

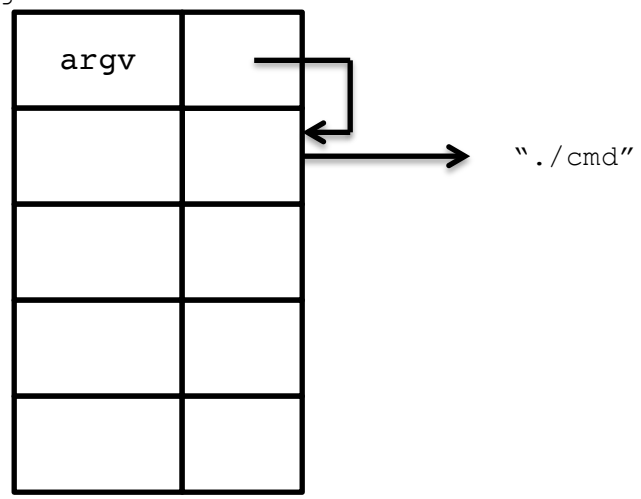
NAME: _____

4/2/0 11. Describe the following type declaration with respect to pointers and arrays.

__/25 `char * strings[]`

7/5/2/0 12. Complete the argv array below for call in the program with following command line arguments:

`./cmd go navy`



8/5/3/0 13. Explain why the following for loop iteration over the **argv** array will terminate:

```
int main(int argc, char * argv[]){
      char ** curarg;
      int i;

      i=0;
      for( curarg=argv;
            *curarg != NULL;
            curarg++, ){
            printf("argv[%d] = %s\n", i, *curarg);
            i++;
      }
}
```

3/1/0 14. Using atoi() to convert the string to a number.

```
char five[] = "5"
int i; //set to five
```

15. Using sscanf() to convert the string to a number 3/1/0

```
char five[] = "5"
int i; //set to five
```


/25