hw1: C Programming 1 Results for VARDAAN KAPOOR (He/him)

Score for this attempt: **8** out of 8
Submitted Feb 13 at 6:26pm
This attempt took 17 minutes.

Question 1

1 / 1 pts

```
#include <stdio.h>

int main(void) {
  int i = 11;
  int *ptr1 = &i;
  int **ptr2 = &ptr1;
  int ***ptr3 = &ptr2;

  printf("%p, %p, %p, %p\n", ptr1, ptr2, ptr3, &ptr3);

  return 0;
}
```

If the program output is (where _ is part of the address that is not shown):
`0x_0b4, 0x_0b8, 0x_0c0, 0x_0c8`

- At address `0x_0b4` is stored [Select] .
- At address `0x_0c8` is stored [Select] .

Answer 1:

Correct!

11

Answer 2:

Correct!

0x_0c0

Question 2

1 / 1 pts

Consider the following code:

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

int main(void) {
        char destination[16] = "batman";
        char source[] = "spiderman";
        strcat(destination, source);
        printf("%s %s %d %d", destination, source, sizeof(destinatio
n), sizeof(source));
        return 0;
}
```

The program output is?

- spiderman spiderman 7 10
- batmanspiderman spiderman 15 9
- spiderman spiderman 10 10

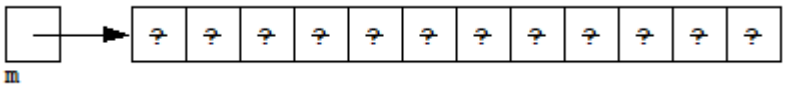
Correct!

- batmanspiderman spiderman 16 10
- batmanspiderman spiderman 7 10

Question 3

1 / 1 pts

Consider the following memory diagram where **`m` is on the stack** and the rest is heap memory. It is intended to be used as a 2-dimensional matrix of integers having 3 rows with each having 4 columns (where ~~?~~ indicates an uninitialized integer value):



Which one of the following code fragments will allocate the heap memory as diagrammed above?

```
int **m = malloc(sizeof(int*) * 3);
m[0] = malloc(sizeof(int) * 3 * 4);
m[1] = m[0] + 4;
m[2] = m[1] + 4;
```

```
int *m = malloc(sizeof(int*) * 3);
m[0] = malloc(sizeof(int) * 3 * 4);
```

Correct!

```
int *m = malloc(sizeof(int) * 3 * 4);
```

```
int **m = malloc(sizeof(int*) * 3 * 4);
```

```
int **m = malloc(sizeof(int*) * 3);
m[0] = malloc(sizeof(int) * 4);
m[1] = malloc(sizeof(int) * 4);
m[2] = malloc(sizeof(int) * 4);
```

Question 4

1 / 1 pts

Consider the following code:

```
#include <stdio.h>

void update(int *x) {
    int *a;
    CODE A
    printf("%d ", *a);
}

int main(void) {
    int a = 4;
    int *b = &a;
    printf("%d ", *b);
    update(b);
    printf("%d ", *b);
    return 0;
}
```

Which one of the following is FALSE?

if CODE A is:

```
a = malloc(sizeof(int));
*a = 1;
x = a;
```

then the output is:

```
4 1 4
```

if CODE A is:

```
a = x;
*a = 16;
```

then the output is:

```
4 16 16
```

if CODE A is:

```
a = malloc(sizeof(int));
a = x;
*x = 1;
```

then the output is:

```
4 1 1
```

Correct!

if CODE A is:

```
*a = 16;
```

then the output is:

```
4 16 4
```

Question 5

1 / 1 pts

Consider the following code:

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

int main(void) {
    int *x = malloc(sizeof(int) * 5);
    for(int i = 0; i < 5; i++) {
        *(x+i) = 4 - i;
    }
    CODE A
    return 0;
}
```

Assume that size of an integer is 4 bytes and value of x to be 1000 in decimal. Which of the the following 4 cases for CODE A are correct?

1. If CODE A is:

```
int *y = x+1;
printf("%d %d %d", x, y, y-x);
```

Output will be: `1000 1004 1`

2. If CODE A is:

```
printf("%d ", *x);
x += 2;
printf("%d", *x);
```

Output will be: `0 2`

3. If CODE A is:

```
int *y = x + 4;
printf("%d %d %d" , x, y, *(x+*y));
```

Output will be: `1000 1016 4`

4. If CODE A is:

```
int *y = x + 1;
printf("%d %d %d" , x, y, y-x);
```

Output will be: `1000 1008 2`

Correct!

- (selected) 1 and 3
- 1, 2, 3, and 4

- 1 only
- 2 and 4
- 2 only

Question 6

1 / 1 pts

```
#include <stdio.h>

void f(int num1, int num2, int *ptr3) {
        int temp = *(ptr3 + num1);
        ptr3[num1] = ptr3[num2];
        *(ptr3 + num2) = temp;
}

int main(void) {
        int a = 3;
        int b = 0;
        int c[] = {13, 3, 21, 8, 2, 5};

        f(a, b, c+1);

        printf("%i,%i,%i,%i,%i,%i\n", c[0], c[1], c[2], c[3], c[4], c
[5]);

        return 0;
}
```

Which one of the following shows the output of the program?

- 8,3,21,13,2,5
- 13,3,21,8,2,5

Correct!

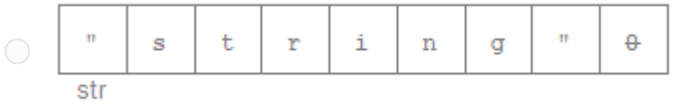
- 13,2,21,8,3,5
- 13,3,5,8,2,21

Question 7

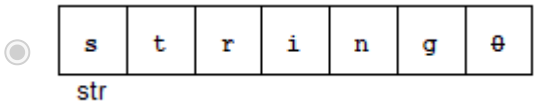
1 / 1 pts

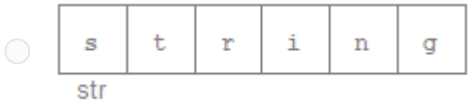
Which one of the following diagrams the memory corresponding to this code:

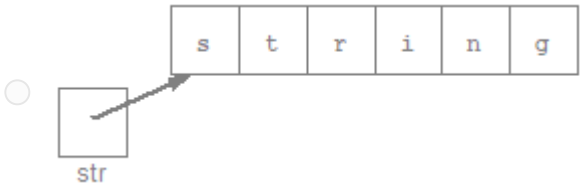
```
char str[] = "string";
```

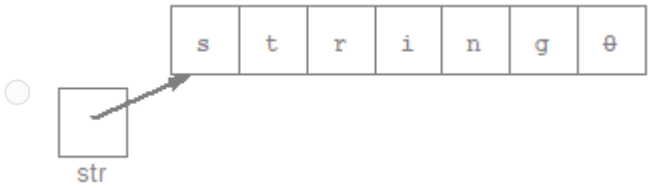


Correct!









Question 8

1 / 1 pts

Consider the following code:

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

int main(void) {
    int *x[5];

    for(int i = 0; i < 5; i++) {
        x[i] = malloc(sizeof(int) * 5);
```

```
    }
    for(int i = 0; i < 5; i++) {
        for(int j = 0; j < 5; j++) {
            x[i][j] = i * j;
        }
    }
    modify(x, 5, 5);
    return 0;
}
```

Which of the implementations of method `modify` below set all elements of the matrix `x` to zero?

```
1. void modify(int **x, int m, int n) {
       for (int i = 0; i < m; i++) {
           for (int j = 0; j < n; j++) {
               x[i][j] = 0;
           }
       }
   }
2. void modify(int *x[], int m, int n) {
       for (int i = 0; i < m; i++) {
           for (int j = 0; j < n; j++) {
               x[i][j] = 0;
           }
       }
   }
3. void modify(int x[5][5], int m, int n) {
       for (int i = 0; i < m; i++) {
           for (int j = 0; j < n; j++) {
               x[i][j] = 0;
           }
       }
   }
```

- ○ 1, 2 and 3
- ○ 2 only
- ○ 1 and 3

Correct!

- ◉ 1 and 2
- ○ 2 and 3

Quiz Score: **8** out of 8