SE185: Problem Solving in Software Engineering
Quiz # 7 (200 points)

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Answer the following questions and make a pdf file that includes the **source code, sample inputs, and outputs**. You must submit the **pdf file and all of the .c files** on Canvas for full credit. Do not forget to add your group partner name on the pdf file and the source codes.

1. (50 points) Write a complete C program that declares an integer called num and initialize it to 5. Create an integer pointer variable called myPtr that stores the memory address of num. Print the memory addresses of num and myPtr, the values stored in num and myPtr, and the value that myPtr points to in this format:

```
num is stored at: ____
myPtr is stored at: ____
num holds the value: ____
myPtr holds the value: ____
myPtr points to this value: ____
```

Hint: The value that num holds and value that myPtr points to are equal.

```
jesus@ASUS_GA503 /cygdrive/c/fall2022/se185/quiz07
$ ./question1
num is stored at: 0xffffcc2c
myPtr is stored at: 0xffffcc20
num holds the value: 5
myPtr holds the value: 0xffffcc2c
myPtr points to this value: 5
```

2. (50 points) Re-implement the following code by defining int copy_a as an integer pointer variable called ptr_a. Keep int as an integer variable.

```
#include<stdio.h>

int main() {
   int a = 15;
   int copy_a = a;
   a /= 3;
   copy_a = a;

   copy_a++;
   a = copy_a;

   if(copy_a == a) {
      printf("Copy_a = %d\n" , copy_a);
```

```
    printf("a = %d\n" , a);
    printf("Therefore, copy_a = a = %d\n" , copy_a);
  }

  return 0;
}
```

Inputs and outputs format:

```
Copy_a = 6
a = 6
Therefore, copy_a = a = 6
```

```
jesus@ASUS_GA503 /cygdrive/c/fall2022/se185/quiz07
$ ./question2
pdtr_a = 6
a = 6
Therefore, *ptr_a = a = 6
```

```
jesus@ASUS_GA503 /cygdrive/c/fall2022/se185/quiz07
$ ./question2
Copy_a = 6
a = 6
Therefore, Copy_a = a = 6
```

3. (100 points) Write a complete C program that ask users to enter midterm 1 exam score for 30 students. Your program then calculates following exam statistics and print the result.

(a) Midterm 1 exam average

(b) Maximum score

(c) Minimum score

(d) Number of students fail (<60)

(e) Number of students got A (93+)

Your program must meet the following requirements:

1. Store the user inputs (midterm 1 exam scores) to an array named **midterm1Score**
2. You must use a user defined function named **examStat** to calculate the exam statistics, and save the result to an array named **result**.
   - When you call the function, you must **pass four arguments** including **two arrays and the size of the two arrays**.
   - Calculate the exam statistics (mentioned above), and **save the result to an array**.
3. Print the exam statistics from the array named **result**.

```
jesus@ASUS_GA503 /cygdrive/c/fall2022/se185/quiz07
$ ./question3
Enter student's midterm scores one by one with a space between each input
87 98 34 65 33 45 58 12 99 09 43 87 84 93 47 26 74 25 74 69 74 12 35 57 46 96 86 89 77 65
(a) 59
(b) 99
(c) 9
(d) 14
(e) 3
```