**Systems and PDC: Game 2**

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Do not use your book or the Internet or another student. If you have questions, you can ask Richard.

1. [2] pointers (the following code will not compile, but assume it were written so that it did)

int x = 20  
int y = 3  
int \*ptr1 = &x

int \*ptr2 = ptr1

\*ptr1 = 6

ptr1 = &y;  
what is the value of \*ptr2? You must give some brief explanation for your answer

The value of \*ptr2 is the address of y.

1. [2] Arrays. Allocate an array of structs  
     
   int\* st  
   st = malloc(100 \* sizeof(int))  
   printf(“%p”, st)  
   > 0xfff120   
     
   what is the output for   
   printf(“%p”, &st[16])  
   explain briefly what you understand, even if you don’t know the answer

It would print out the element at index 16.

1. [1] What does this instruction do?  
    add $0x2, %eax

Adds 2 to the %eax register

1. What is the largest number of registers that an x86 assembly instruction can have?  
     
   32
2. [2] explain the type (void \*)  
   A type of pointer that can point to different types.
3. (extra) Explain what the following instruction does  
     
   mov -0x4(%rbp), %eax

Pushes value -4 from rbp register to the eax register.