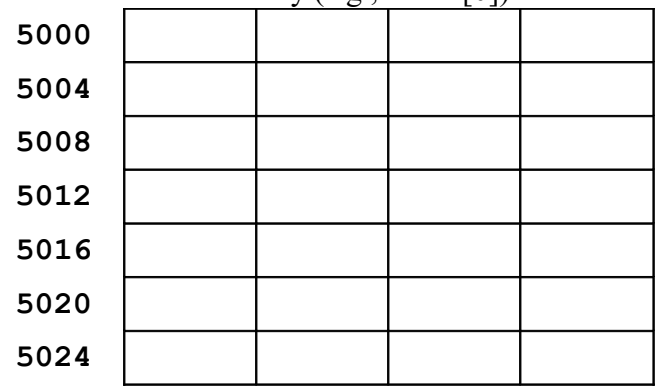
Problem ST-6 (3 parts) Pointers and Arrays

Assuming a 32-bit system with 32-bit memory interface and 32-bit addresses, answer the following questions.

Part A Show how the following global variables map into static memory. Assume it is allocated starting at address 5000. For each variable, draw a box showing its size and position in memory. Label the box with the variable name. Label each element of an array (e.g., Name[0]).

```
int     X;
char    Name[] = "Sad";
int     *Y;
int     Z[] = {37,69,42};
```



Part B Suppose the following variables are allocated beginning at address 6000. Complete the table below, listing the value of the expression following this definition.

```
int         A = 21, B = 49, C = 10, D = 66;
int         *P = &B;
```

&D		***P+1**		**P+1**		**C+1**	
P == B		**&P**		**P[1]**		***(P-1)**	

Explain what happens if **P** is incremented (e.g., **P++**).

Part C Explain the key management difference between static memory and the stack.