EL-GY 6483 **Name:** ____________________

Karan Vora (kv2154)

1. Using the variable x, give definitions for the following:
   (a) An integer
   (b) A pointer to an integer
   (c) An array of 10 integers
   (d) An array of 10 pointers to integers

A) int x=0
B) int *x = 40
C) int x[10]
D) int *x[10] = NULL

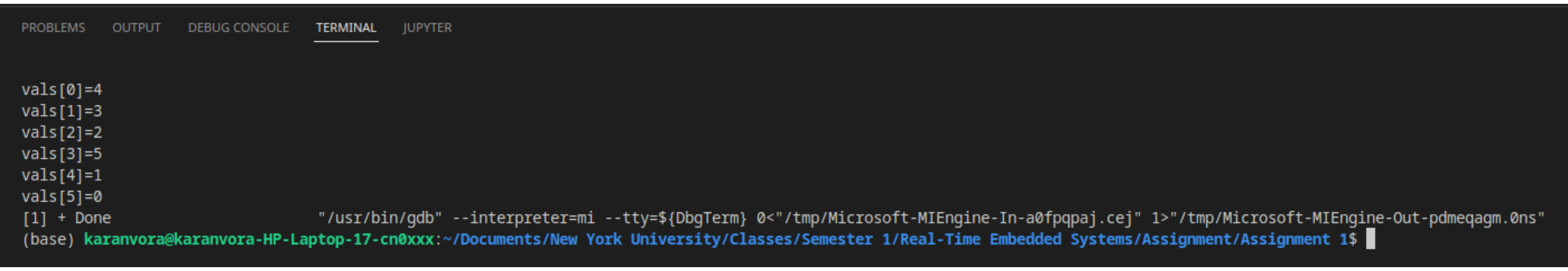
2. What is the output of the following C program?

```
#include <stdio.h>

int main ()
{
    int vals[5] = {4, 3, 2, 5, 1};
    int i;
    for (i=0; i<=5; i++) {
        printf("vals[%d]=%d\n", i, vals[i]);
    }
    return 0;
}
```

vals[0]=4
vals[1]=3
vals[2]=2
vals[3]=5
vals[4]=1
vals[5]=0 (Garbage value due to overflow)

Output of the code



```
vals[0]=4
vals[1]=3
vals[2]=2
vals[3]=5
vals[4]=1
vals[5]=0
[1] + Done                       "/usr/bin/gdb" --interpreter=mi --tty=${DbgTerm} 0<"/tmp/Microsoft-MIEngine-In-a0fpqpaj.cej" 1>"/tmp/Microsoft-MIEngine-Out-pdmeqagm.0ns"
(base) karanvora@karanvora-HP-Laptop-17-cn0xxx:~/Documents/New York University/Classes/Semester 1/Real-Time Embedded Systems/Assignment/Assignment 1$
```

3. (a) What is the output of the following C program?

```
# include <stdio.h>
void fun(int y)
{
        y = 30;
}
int main()
{
    int y = 20;
    fun(y);
    printf("%d", y);
    return 0;
}
```

y=20

(b) In the program above, is the variable y in main() stored on the stack or on the heap?

Y is stored in a Stack

(c) What is the output of this C program?

```
# include <stdio.h>
void fun(int *y)
{
        *y = 30;
}
int main()
{
    int y = 20;
    fun(&y);
    printf("%d", y);
    return 0;
}
```

y=30

(d) In the program above, is the variable y in main() stored on the stack or on the heap?

Y is stored in a stack

(e) True or false: &y in main() and y in fun() have the same value.

True