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Concurrent Systems (Coms 527, Spring 23)

Exercise 1

The solutions for the following tasks must be completed by Jan. 27, 2023 at 11:59pm and be submitted in Canvas . The solutions are not graded, but a submission is expected on canvas. Use of internet is allowed as it will help you to learn.

The created programs do not need to run on the hpc-class cluster. It's enough if they are executable on your private computer /laptop.

Task 1

(0 points) Create a program containing the text `Hello World!` on the screen.

Task 2

(0 points)

The program error.c contains one compile error and two runtime errors. Compile and debug the program. Describe the three mistakes. If it has more than three error codes submit only the first three. Correct the program.

```c
#include <stdlib.h>

typedef struct
{
   char* street;
   int number;
   int post_code;
   char* city;
} address;

address*
create_address( char* street,
    int number,
    int post_code,
    char* city )
{
   address* new_address;
   new_address->street      = street;
   new_address->number      = number;
   new_address->post_code = post_code;
   new_address->city        = city;
   return new_address;
}

address*
duplicate_address( address orig )
{
   address new_address = orig;
   return &new_address;
}

```

```
32  int main ()
33  {
34      address* a1 = create_address( "Mornewegstr.", 30, 64293, "Darmstadt
            " );
35      address* a2 = duplicate_address( &a1 );
36      free( a1 );
37      free( a2 );
38  }
```

Task 3

(0 points) Draw the pattern
1
12
123
1234
12345

Task 4

(0 points) Write a program to find if a number is an Armstrongs number.

Task 5

(0 points) Write a program to make this pattern
12345
1234
123
12
1

Task 6

(0 points) Write a program to represent Pascals Triangle.
Input the number of rows so that it can be scalable.
Expected Output :
1
1 1
1 2 1
1 3 3 1
1 4 6 4 1