C: structs; Number representation: binary

COSC 208, Introduction to Computer Systems, 2022-02-03

Warm-up

Q1: *Write a function called* `count_words` *that takes a string and counts the number of words in the string. Assume each word is separated by a single space, and the string will contain at least one word. For example,* `"Today is Wednesday."` *contains 3 words.*

```

```

🛑 Stop here after completing the warm-up; if you have extra time please **skip ahead** to the extra practice.

- Q2: *Draw the stack right before the return from* `mystery`

```c
struct personT {
  char name[32];
  int  age;
};

void mystery(int i_val, struct personT per, int a[], int n);

int main() {
  struct personT person;
  int x, i;
  int arr[5];

  for(i=0; i < 5; i++) {
     arr[i] = i;
  }
  x = 13;
  strcpy(person.name, "Lila");
  person.age = 10;
  mystery(x, person, arr, 5);

  for(i=0; i < 5; i++) {
     printf("arr[%d] = %d\n", i, arr[i], 5);
  }
  printf("x = %d age = %d name = %s\n", x, person.age, person.name);

}

void mystery(int i_val, struct personT per, int a[], int n) {
  for(int i = 0; i < n; i++) {
     a[i] = a[i]*a[i];
  }
  strcpy(per.name, "Orso");
  per.age = 18;
  i_val = 100;
  //**** DRAW STACK IS RIGHT BEFORE return STATEMENT IS EXECUTED
  return;
}
```

Binary (i.e., base 2)

Convert these binary numbers to decimal (i.e., base 10):

Q3: `0b10`

Q4: `0b11`

Q5: `0b1010`

Q6: `0b1111`

Q7: `0b11001100`

Extra practice

Extra practice

- *Convert these binary numbers to decimal:*
  - QA: `0b1111`

```

```

  - QB: `0b10100`

```

```

  - QC: `0b101000`

```

```