Homework 04

Due date: Oct 14, 2016

Question 1 : Write C functions that perform the given tasks

1) A function `isprime` that takes a positive integer as an input and produces 1 if it is a prime number and 0 otherwise.
   Example: `printf("%d\n", isprime(17));  /* output is: 1 */`

2) A function `slen` that takes a string as an input and return the length of the string (i.e. its letters count).
   Example: `printf("%d\n", slen("Whatever"));  /* output is: 8 */`

3) A recursive function `reverse` that reads a sequence of positive integer numbers and when reads a non-postive value prints the sequence in a reversed order.
   Example: `reverse(); /*input: 12 3 27 55 9 -1  output: 9 55 27 3 12 */`

4) A function `sumdig` that reads a positive integer and returns the sum of its digits.
   Example: `printf("%d\n", sumdig(628105));  /* output is: 22 */`

Question 1 : Answers

1)
```
int isPrime(int x){
  int i;
  for (i =2; i <= x/2; i++)
    if (x % i == 0) return 0;
  return 1;
}
```
3

2)
```
int slen(char* str){
  int i=0;
  while(str[i++] != '\0');
  return --i;
}
```
3

3)
```
void reverse(){
  int x;
  scanf("%d", &x);
  if (x > 0) reverse();
  printf("%d ", x);
}
```
3

4)
```
int sumdig(int x){
  int result = 0;
  while(x > 0){
    result += x%10;
    x /= 10;
  }
  return result;
}
```
3

Question 2 : What is the output of each of the following programs?

```
#include <stdio.h>
void display();

int main(){
    display();
    display();
}

void display(){
    static int c = 0;
    printf("%d  ",c);
    c += 5;
}
```

```
0  5  2
```

```
#include <stdio.h>
void funct1(void); void funct2(void);

int globvar = 10;

int main(){
  globvar = 20; printf("%d\n", globvar);
  funct1(); printf("%d\n", globvar);
  funct2(); printf("%d\n", globvar);
  return 0;
}

int globvar2 = 30;

void funct1(void){
  char globvar; globvar = 'A'; globvar2 = 40;
  printf("%c %d\n", globvar, globvar2);
}

void funct2(void){
  double globvar2; globvar =  50; globvar2 = 1.234;
  printf("%d %.4f\n", globvar, globvar2);
}
```

```
20  1
A 40  1
20 1
50 1.2340 2
50 1
```