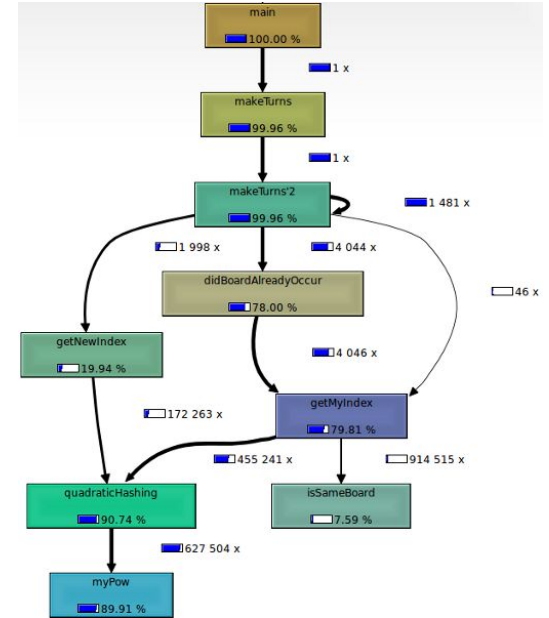
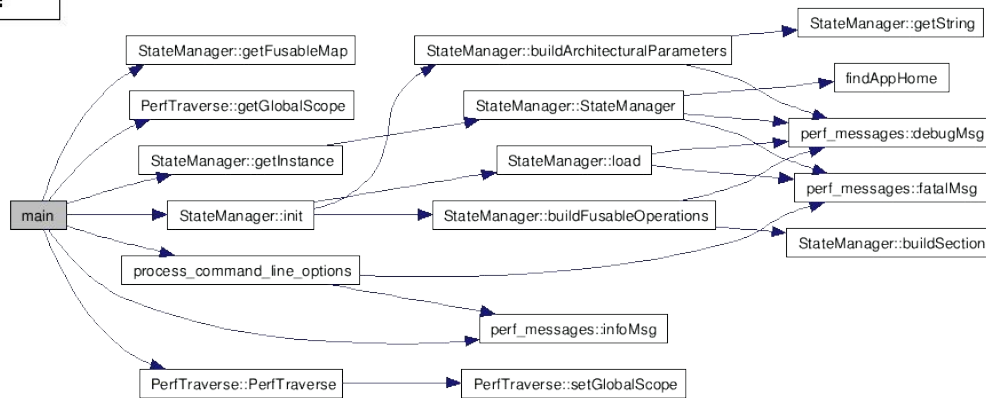
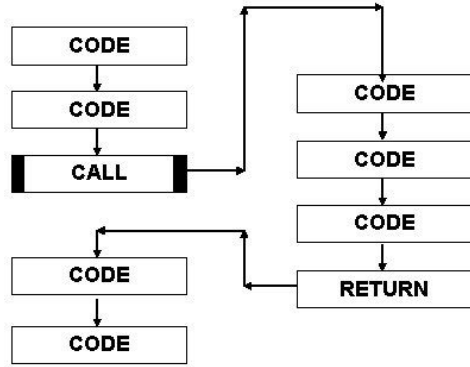


Effects of subroutines on code comprehension

By: Nathan Voldman, Sagiv Yaari

Background - Subroutines



Research question - Subroutine Names

How does the naming of subroutines effect code clarity?

→ Specifically, does short function names make code reading harder?

Methodology - A python Quiz!

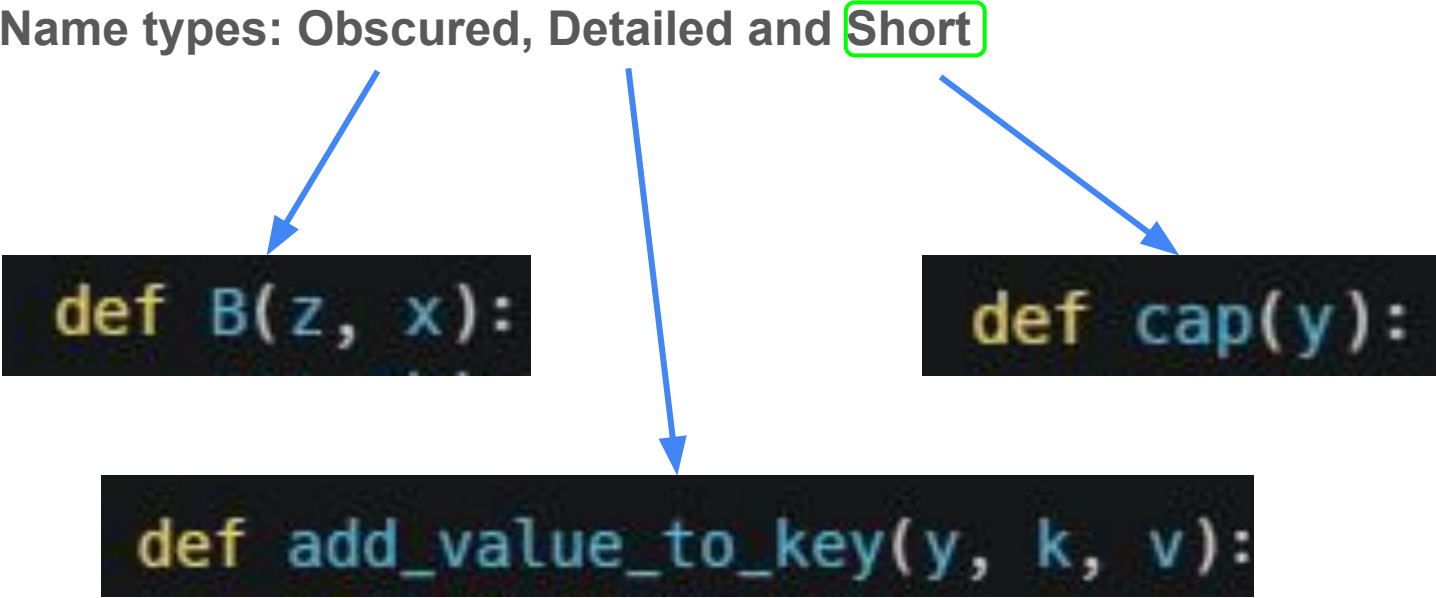
```
def B(z, x):  
    ''' This function does ??? '''  
    ans = 0  
    for _ in range(z):  
        ans += x  
    return ans  
  
def A(x, y):  
    ''' This function does ??? '''  
    ans = 1  
    for _ in range(y):  
        ans = B(ans, x)  
    return ans  
  
if __name__ == "__main__":  
    x, y = 2, 5  
    z = A(x, y)  
    print(z)
```

```
def cap(y):  
    z = y[0].upper()  
    z += y[1:]  
    return z  
  
def cml(function_input):  
    ans = []  
    x = function_input.split(' ')  
    for y in x:  
        z = cap(y)  
        ans.append(z)  
    return ''.join(ans)  
  
if __name__ == "__main__":  
    function_input = 'this is a test string'  
    print(cml(function_input))
```

```
def add_value_to_key(y, k, v):  
    if k in y.keys():  
        y[k] = y[k] + v  
    else:  
        y[k] = v  
  
def sum_values_over_keys(x):  
    y = {}  
    for k, v in x:  
        add_value_to_key(y, k, v)  
    return y  
  
if __name__ == '__main__':  
    x = [(1, 2), (4, 3), (4, 5)]  
    ans = sum_values_over_keys(x)  
    print(ans[4])
```

Methodology - A python Quiz!

Name types: Obscured, Detailed and **Short**



```
def B(z, x):
```

```
def cap(y):
```

```
def add_value_to_key(y, k, v):
```

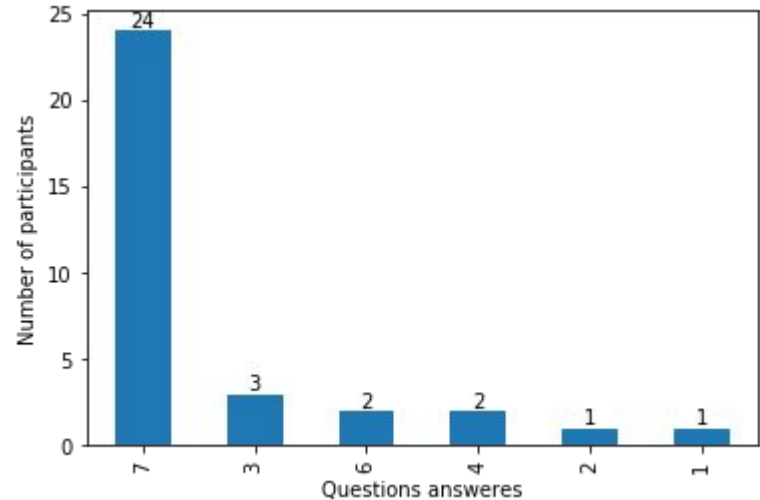
Metadata

Participants: 33

Time per question (median): 72 seconds

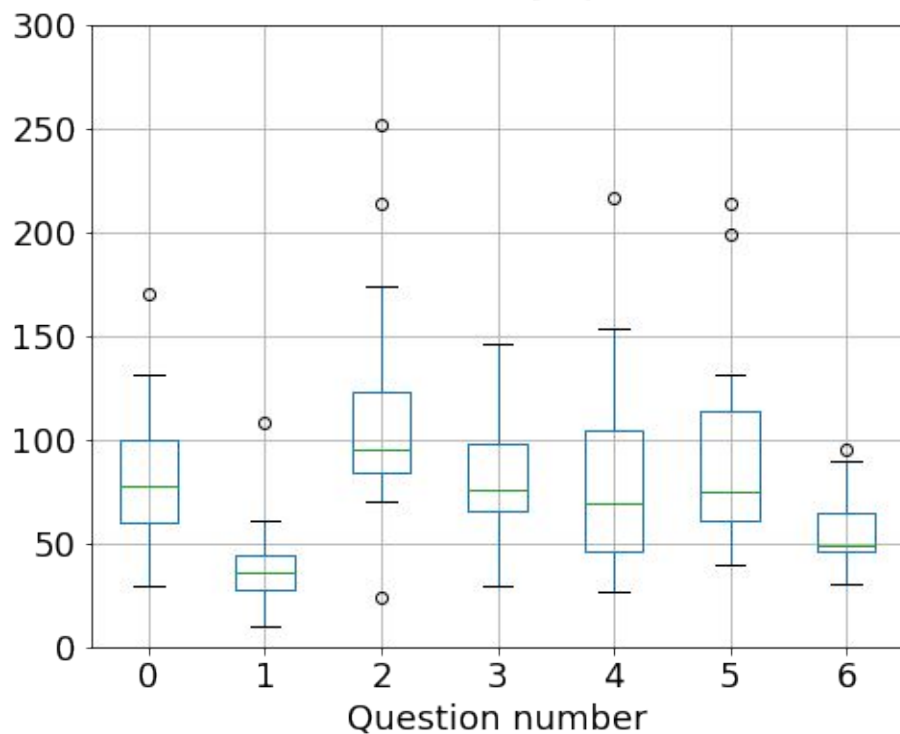
Quiz time (median): 465 sec

Questions answered (median): 5 / 6

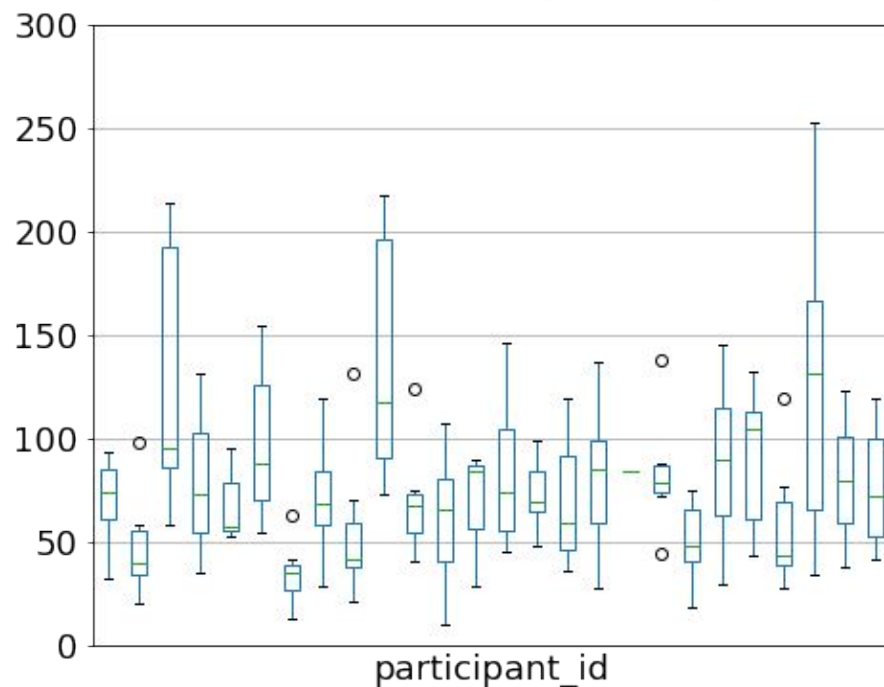


Detailed metadata

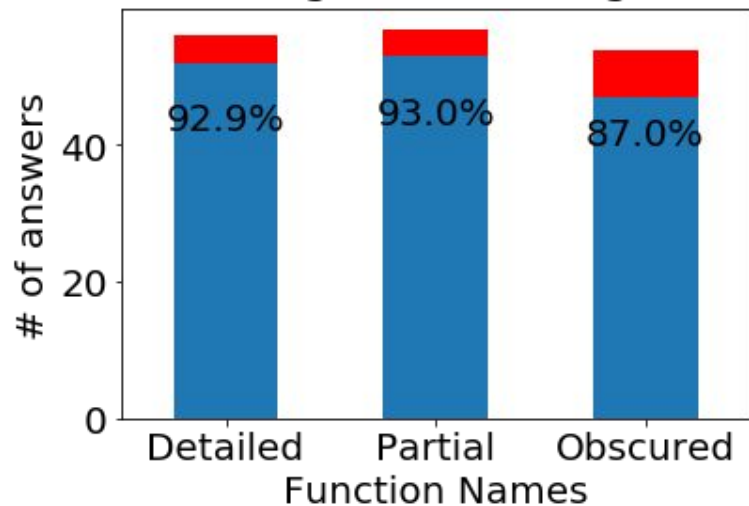
Time to answer by question



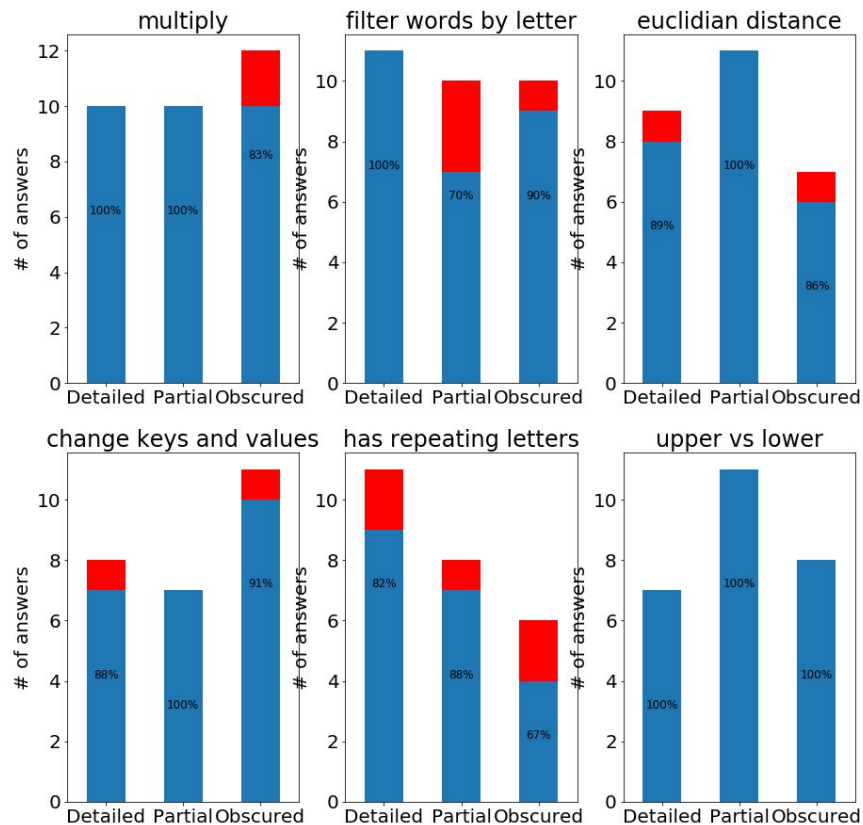
Time to answer by participant



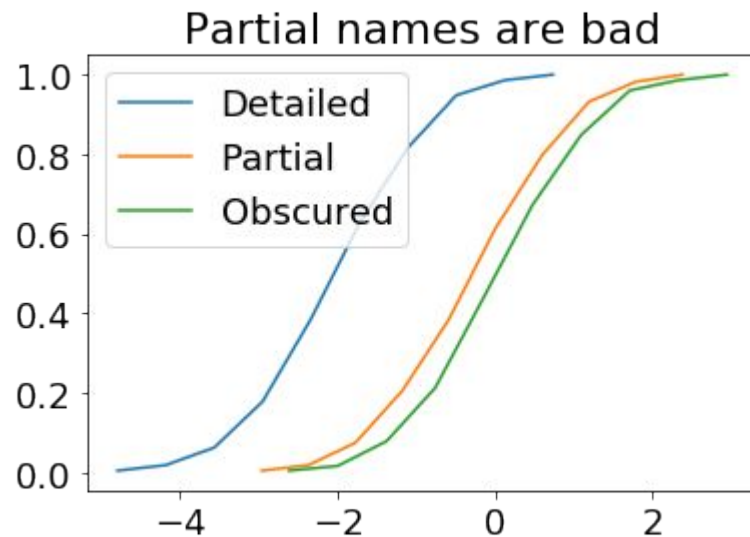
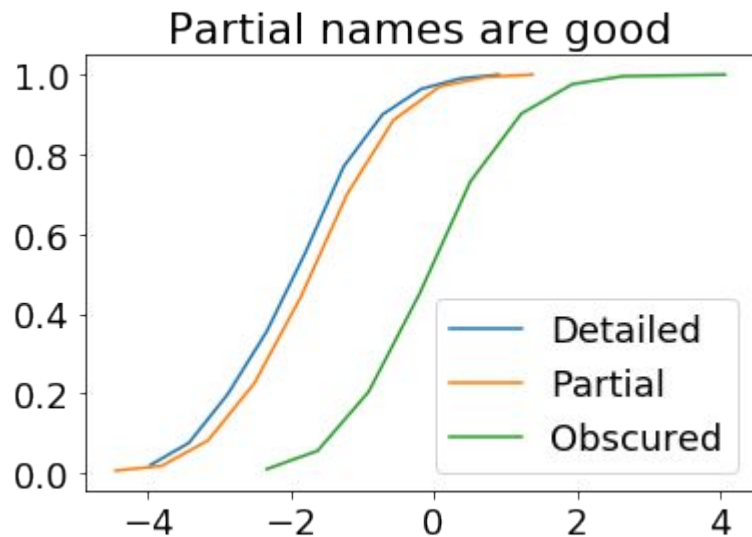
Number of right and wrong answers



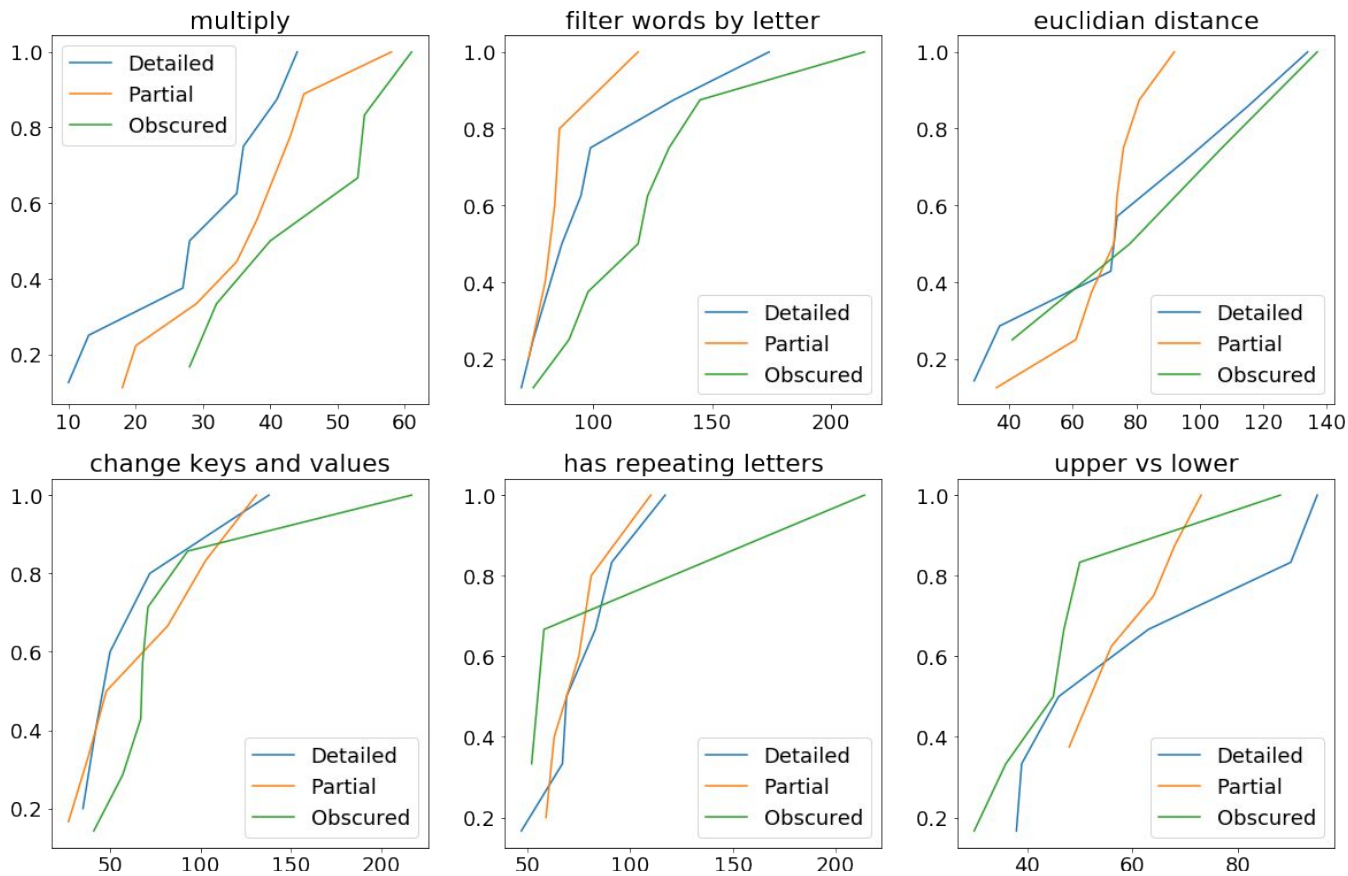
Number of right and wrong answers



Before the results, what are we expecting?



Results - Per question, raw



Results - aggregated, raw

