

```
def filter_int(f):  
    def process(x):  
        if isinstance(x,int):  
            return f(x)  
        else:  
            return 'Invalid datatype'  
    return process
```

```
def square(i):  
    result = i ** 2  
    return result
```

filter_int and square definition

```
def filter_int(f):  
    def process(x):  
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def square(i):  
    result = i ** 2  
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filter_int →

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def process(x):  
    if isinstance(x,int):  
        return f(x)  
    else:  
        return 'Invalid datatype'  
return process
```

square →

```
result = i ** 2  
return result
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def filter_int(f):  
    def process(x):  
        if isinstance(x,int):  
            return f(x)  
        else:  
            return 'Invalid datatype'  
    return process  
  
def square(i):  
    result = i ** 2  
    return result
```

Problems

```
res = filter_int(square)  
print(res('Hello'))
```

filter_int function call
filter_int →

```
1 def process(x):  
    if isinstance(x,int):  
        return f(x)  
    else:  
        return 'Invalid datatype'  
2 return process
```

square →
f →

```
result = i ** 2  
return result
```

res →

```
if isinstance(x,int):  
    return f(x)  
else:  
    return 'Invalid datatype'
```

Problems

```
def filter_string(f):  
    def process(x):  
        if isinstance(x, str):  
            return f(x) # call MakeUpper function, if x is str  
        else:  
            return 'Invalid data type' # for other than str  
    return process # return process function from filter_string  
def MakeUpper(s):  
    return s.upper()
```

```
MakeUpper = filter_string(MakeUpper)
```



```
def filter_string(f):  
    ↑ def process(x):  
        if isinstance(x, str):  
            return f(x) # call MakeUpper function, if x is str  
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def MakeUpper(s):  
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filter_string(f) →

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def process(x):  
    if isinstance(x, str):  
        return f(x) # call MakeUpp  
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def MakeUpper(s):
    ↑ return s.upper()
```

```
MakeUpper = filter_string(MakeUpper)
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def process(x):
    if isinstance(x, str):
        return f(x) # call MakeUpper
    else:
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return process # return process
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```
return s.upper()
```

MakeUpper(s)
←

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return process # return process
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return s.upper()
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process(x) →

```
if isinstance(x, str):
    return f(x) # call MakeUpper
else:
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```



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```
MakeUpper = filter_string(MakeUpper)
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~~filter_string(f)~~ ↘

```
def process(x):
    if isinstance(x, str):
        return f(x) # call MakeUpper
    else:
        return 'Invalid data type'
return process # return process
```

f →

```
return s.upper()
```

~~MakeUpper(s)~~ ↗

~~process(x)~~ →
MakeUpper(x) ↗

```
if isinstance(x, str):
    return f(x) # call MakeUpper
else:
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MakeUpper = filter_string(MakeUpper)
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Note: MakeUpper → process

filter_string(f) ↘

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def process(x):
    if isinstance(x, str):
        return f(x) # call MakeUpper
    else:
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return process # return process
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f →

```
return s.upper()
```

~~MakeUpper(s)~~

~~process(x)~~
MakeUpper(x)

```
if isinstance(x, str):
    return f(x) # call MakeUpper
else:
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