Task 1: Runtime Error Due to Invalid Input Type

Bug: input treated as string

Fix: Convert input to integer.

```
# Incorrect Code:
num = input('Enter a number: ')
result = num + 10
print(result)
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[1], line 3
      1 # Incorrect Code:
      2 num = input('Enter a number: ')
----> 3 result = num + 10
      4 print(result)

TypeError: can only concatenate str (not "int") to str
```

```
# Corrected Code:
num = int(input("Enter a number: "))
result = num + 10
print(result)
```

```
22
```

Task 2: Incorrect Function Return Value

Bug: Missing return statement.

Fix: Add return

```
# Incorrect Code:
def square(n):
        result = n * n
```

```
# Corrected Code:
def square(n):
    return n * n
```

Task 3: IndexError in List Traversal

Bug: Loop exceeds index.

Fix: Correct loop boundary.

```
# Incorrect Code:
numbers = [10, 20, 30]
```

```
for i in range(0, len(numbers)+1):
        print(numbers[i])
```

```
10
20
30
---------------------------------------------------------------------------
IndexError                                Traceback (most recent call last)
Cell In[6], line 4
      2 numbers = [10, 20, 30]
      3 for i in range(0, len(numbers)+1):
----> 4         print(numbers[i])

IndexError: list index out of range
```

```
# Corrected Code:
numbers = [10, 20, 30]
for i in range(len(numbers)):
        print(numbers[i])
```

```
10
20
30
```

Task 4: Uninitialized Variable Usage

Bug: Variable used before assignment.

Fix: Initialize variable.

```
# Incorrect Code:
if True:
        pass
print(total)
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[8], line 4
      2 if True:
      3         pass
----> 4 print(total)

NameError: name 'total' is not defined
```

```
# Corrected Code:
total = 0
print(total)
```

```
0
```

Task 5: Logical Error in Grading System

Bug: Incorrect condition logic

Fix: Fix: Correct grade order.

```
# Incorrect Code:
marks = 85
if marks >= 90:
        grade = 'A'
elif marks >= 80:
        grade = 'C'
else:
        grade = 'B'
print(grade)
```

```
C
```

```
# Corrected Code:
marks = 85
if marks >= 90:
        grade = "A"
elif marks >= 80:
        grade = "B"
else:
        grade = "C"
print(grade)
```

```
B
```