

Section A: Output even numbers between 80 and 100

In this section, we use a while loop to iterate over numbers from 80 to 100 (inclusive). Inside the loop, we check if each number is even by using the modulo operator `%`. If the remainder of dividing the number by 2 is zero, it means the number is even

```
num = 80
while num <= 100:
    if num % 2 == 0:
        print(num)
    num += 1
```

Section B: Modify the code to output even numbers in descending order

This section is a modification of the previous code. Instead of starting from 80 and incrementing the number, we start from 100 and decrement it until we reach 80. This way, we output even numbers in descending order.

```
num = 100
while num >= 80:
    if num % 2 == 0:
        print(num)
    num -= 1
```

Section C: Modify the code to ask for user input for upper and lower limits

In this section, we further modify the code to prompt the user to input two positive integer values: lower_limit and upper_limit. We ensure that both values are positive by using a while loop with input validation. If the user enters a negative value, we prompt them again until they input a positive value. After obtaining both limits, we ensure that the lower limit is smaller than the upper limit. Then, we output the even numbers within the specified range using a while loop.

```
lower_limit = int(input("Enter the lower limit: "))
while lower_limit < 0:
    print("Lower limit must be positive.")
    lower_limit = int(input("Enter the lower limit: "))

upper_limit = int(input("Enter the upper limit: "))
while upper_limit < 0:
    print("Upper limit must be positive.")
    upper_limit = int(input("Enter the upper limit: "))

if lower_limit > upper_limit:
    lower_limit, upper_limit = upper_limit, lower_limit
```

```
print("Even numbers between", lower_limit, "and", upper_limit, "inclusive:")
num = lower_limit
while num <= upper_limit:
    if num % 2 == 0:
        print(num)
    num += 1
```