

✓ Case study(2): LED Brightness Control

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print("*****LED BRIGHTNESS CONTROL*****\n")
brightness=0
step=10
print("Commands: '+' to increase, '-' to decrease, 'exit' to quit.\n")
while True:
    command= input("Enter command: ").strip()
    incount=0
    decount=0
    for i in command:
        if i=="+":
            incount+=1
        elif i=="-":
            decount+=1

    if command == '+'*incount:
        if brightness<100:
            in_brightness=brightness+step*incount
            if in_brightness>100:
                print("Brightness cannot be increased more than 100%")
            else:
                brightness=in_brightness
                print(f"Brightness increased to {brightness}%")
        else:
            print("Brightness is already at maximum!")

    elif command == '-'*decount:
        if brightness>0:
            d_brightness=brightness-step*decount
            if d_brightness<0:
                print("Brightness cannot be decreased more than 0%")
            else:
                brightness=d_brightness
                print(f"Brightness decreased to {brightness}%")
        else:
            print("Brightness is already at minimum!")

    elif command.lower()=='exit':
        print("Exiting program...")
        break

    else:
        print("Invalid command. Use '+' or '-'")

    print("LED: "+"[~] "*(brightness//10)+" "*(100-brightness)//10+f"({brightness}%)\n")

print("Program ended.")

```

```

*****LED BRIGHTNESS CONTROL*****

Commands: '+' to increase, '-' to decrease, 'exit' to quit.

Enter command: ++
Brightness increased to 20%
LED: [~] [~]          (20%)

Enter command: ++
Brightness increased to 40%
LED: [~] [~] [~] [~]   (40%)

Enter command: ++
Brightness increased to 60%
LED: [~] [~] [~] [~] [~] [~]   (60%)

Enter command: ++
Brightness increased to 80%
LED: [~] [~] [~] [~] [~] [~] [~] [~]   (80%)

Enter command: -
Brightness decreased to 70%
LED: [~] [~] [~] [~] [~] [~] [~]   (70%)

Enter command: +++
Brightness increased to 100%

```

```
LED: [~] [~] [~] [~] [~] [~] [~] [~] [~] [~] (100%)
```

```
Enter command: +
```

```
Brightness is already at maximum!
```

```
LED: [~] [~] [~] [~] [~] [~] [~] [~] [~] [~] (100%)
```

```
Enter command: /
```

```
Invalid command. Use '+' or '-'.
```

```
LED: [~] [~] [~] [~] [~] [~] [~] [~] [~] [~] (100%)
```

```
Enter command: ---
```

```
Brightness decreased to 70%
```

```
LED: [~] [~] [~] [~] [~] [~] [~] [~] [~] [~] (70%)
```

```
Enter command: exit
```

```
Exiting program...
```

```
Program ended.
```