**Problem 1:**

***Brief Explanation:***

For this problem, we had to use DES to encrypt a message about Sir Lewis Hamilton and ultimately decrypt the encrypted message to reproduce the message. First, we determined whether the program call used either -e or -d, which identified if the DES was using encryption or decryption. The major difference between encryption and decryption is that the round keys will be reversed. However, both algorithms will use the Feistel Structure.

***Encrypted Output:*** 

***Decrypted Output:***

In the unforgiving world of Formula One, Lewis Hamilton abides at the top. He's the man to beat, the top earner, the most important voice, the most prominent figure  - a Black man alone at the summit of motorsports' highest echelon. England's knight in Mercedes armor. Over the past 15 years, the 36-year-old Briton has won seven world championships, tying the record set by Ferrari's Michael Schumacher  - the German F1 driver who was regarded as the greatest of all time until Hamilton broadsided him from that perch. At Sunday's Russian Grand Prix, Hamilton rallied through a late rain shower to claim the checkered flag on the way to becoming the first driver in the sport's history with 100 career victories. And that's besides his 100 career pole positions. As achievements go in racing, this is beyond otherworldly.

**Problem 2:**

***Brief Explanation:***

Insert text here

***Encrypted PPM image:***

A picture containing fabric

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