

Assignment 7

1. 1)states:
 $x_1 = \{\text{door1 is reward door, door2 is tiger door}\}, x_2 = \{\text{door1 is tiger door, door2 is reward door}\};$
 2)actions:
 $u_1 = \{\text{open door1}\}, u_2 = \{\text{open door2}\}, u_3 = \{\text{listen}\};$
 3)cost(reward) function:
 $V_1(b) = \max\{200p_1 - 1000(1 - p_1), -1000p_1 + 200(1 - p_1), -50\}$
 4)measurement space:
 $\{z_1, z_2\} = \{0.8, 0.2\} = \{\text{prob correctly localize noise, prob to make mistake}\}$
 5)associated probabilities:

2. "Listen listen open door1"
 $V_1(b) = -50 - 50 + 200p_1 - 1000(1 - p_1)$ -we choose u_1 anyway, independently of result of u_3 , thus we just add doubled expected reward of doing u_3 and expected reward after doing u_1

3. "Listen, then open the door for which you did not hear a noise" $V_1(b) = -50 + 200 * 0.8 - 1000 * 0.2 = -90$ after committing u_3 we act according to the results of measurements, thus we will open the door with best measurement with probability 0.8.