The code for HW2 is separated into question\_1.py、question\_2.py and to represent each question in HW2. I have written my function in function.py for question\_1.py and question\_2.pyto use. I have written environment information in requirements.txt.

Question 1

(a)I have saved MV.txt including all Motion Vector for each Macroblock. The answer is as follows.

------------MV.txt------------

Block 0 - (0,0)

Block 1 - (15,15)

Block 2 - (15,15)

Block 3 - (15,15)

Block 4 - (15,15)

Block 5 - (15,15)

Block 6 - (-12,13)

Block 7 - (7,15)

Block 8 - (13,15)

Block 9 - (15,15)

Block 10 - (-1,15)

Block 11 - (15,15)

Block 12 - (15,15)

Block 13 - (15,15)

Block 14 - (15,15)

Block 15 - (15,15)

Block 16 - (15,15)

Block 17 - (0,15)

Block 18 - (2,15)

Block 19 - (-15,-14)

Block 20 - (0,5)

Block 21 - (-1,15)

Block 22 - (15,15)

Block 23 - (15,15)

Block 24 - (15,15)

Block 25 - (15,15)

Block 26 - (15,15)

Block 27 - (-11,2)

Block 28 - (0,0)

Block 29 - (-5,-1)

Block 30 - (14,13)

Block 31 - (15,15)

Block 32 - (-9,15)

Block 33 - (14,1)

Block 34 - (-8,4)

Block 35 - (-14,7)

Block 36 - (8,13)

Block 37 - (-5,15)

Block 38 - (12,15)

Block 39 - (15,15)

Block 40 - (15,15)

Block 41 - (5,15)

Block 42 - (15,15)

Block 43 - (-1,15)

Block 44 - (2,0)

Block 45 - (7,15)

Block 46 - (-12,15)

Block 47 - (15,15)

Block 48 - (11,15)

Block 49 - (3,15)

Block 50 - (15,15)

Block 51 - (15,15)

Block 52 - (15,15)

Block 53 - (-3,15)

Block 54 - (-1,15)

Block 55 - (1,12)

Block 56 - (10,15)

Block 57 - (13,15)

Block 58 - (15,15)

Block 59 - (15,15)

Block 60 - (15,15)

Block 61 - (10,15)

Block 62 - (1,15)

Block 63 - (15,8)

Block 64 - (15,9)

Block 65 - (-1,-2)

Block 66 - (1,1)

Block 67 - (1,15)

Block 68 - (8,15)

Block 69 - (14,15)

Block 70 - (15,15)

Block 71 - (5,13)

Block 72 - (0,15)

Block 73 - (-12,15)

Block 74 - (-15,-5)

Block 75 - (4,-3)

Block 76 - (-1,-5)

Block 77 - (0,0)

Block 78 - (-14,4)

Block 79 - (-13,15)

Block 80 - (6,15)

Block 81 - (-4,15)

Block 82 - (14,8)

Block 83 - (-12,8)

Block 84 - (-13,15)

Block 85 - (0,0)

Block 86 - (15,15)

Block 87 - (-1,-3)

Block 88 - (6,-3)

Block 89 - (-4,-1)

Block 90 - (-11,-1)

Block 91 - (-14,-1)

Block 92 - (-15,-12)

Block 93 - (15,-1)

Block 94 - (4,-1)

Block 95 - (-13,-1)

Block 96 - (15,-2)

Block 97 - (15,-1)

Block 98 - (-1,-1)

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(b) fig.1 is the collage image for all the reference blocks as a frame that corresponds to foreman\_qcif\_1\_rgb.bmp

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|  |
| Fig.1 |

Question 2

1. I have saved q2\_MV.txt including all the prediction modes with their corresponding block The answer is as follows.

-------MV.txt---------

Block 0 - -1

Block 1 - 1

Block 2 - 1

Block 3 - 1

Block 4 - 1

Block 5 - 1

Block 6 - 1

Block 7 - 1

Block 8 - 1

Block 9 - 1

Block 10 - 1

Block 11 - 0

Block 12 - 0

Block 13 - 1

Block 14 - 1

Block 15 - 0

Block 16 - 1

Block 17 - 1

Block 18 - 2

Block 19 - 2

Block 20 - 2

Block 21 - 2

Block 22 - 0

Block 23 - 1

Block 24 - 2

Block 25 - 0

Block 26 - 1

Block 27 - 1

Block 28 - 1

Block 29 - 1

Block 30 - 1

Block 31 - 2

Block 32 - 2

Block 33 - 0

Block 34 - 1

Block 35 - 1

Block 36 - 1

Block 37 - 1

Block 38 - 1

Block 39 - 1

Block 40 - 2

Block 41 - 0

Block 42 - 1

Block 43 - 2

Block 44 - 0

Block 45 - 1

Block 46 - 1

Block 47 - 0

Block 48 - 0

Block 49 - 1

Block 50 - 0

Block 51 - 0

Block 52 - 1

Block 53 - 2

Block 54 - 2

Block 55 - 0

Block 56 - 1

Block 57 - 0

Block 58 - 0

Block 59 - 1

Block 60 - 2

Block 61 - 0

Block 62 - 2

Block 63 - 1

Block 64 - 0

Block 65 - 2

Block 66 - 0

Block 67 - 2

Block 68 - 2

Block 69 - 2

Block 70 - 0

Block 71 - 0

Block 72 - 0

Block 73 - 0

Block 74 - 1

Block 75 - 1

Block 76 - 0

Block 77 - 0

Block 78 - 2

Block 79 - 2

Block 80 - 2

Block 81 - 2

Block 82 - 0

Block 83 - 1

Block 84 - 0

Block 85 - 1

Block 86 - 2

Block 87 - 1

Block 88 - 0

Block 89 - 2

Block 90 - 0

Block 91 - 0

Block 92 - 2

Block 93 - 2

Block 94 - 2

Block 95 - 0

Block 96 - 0

Block 97 - 1

Block 98 - 1

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(b) fig.2 is the collage image for all the reference blocks as a frame that corresponds to foreman\_qcif\_0\_rgb.bmp

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|  |
| Fig.2 |