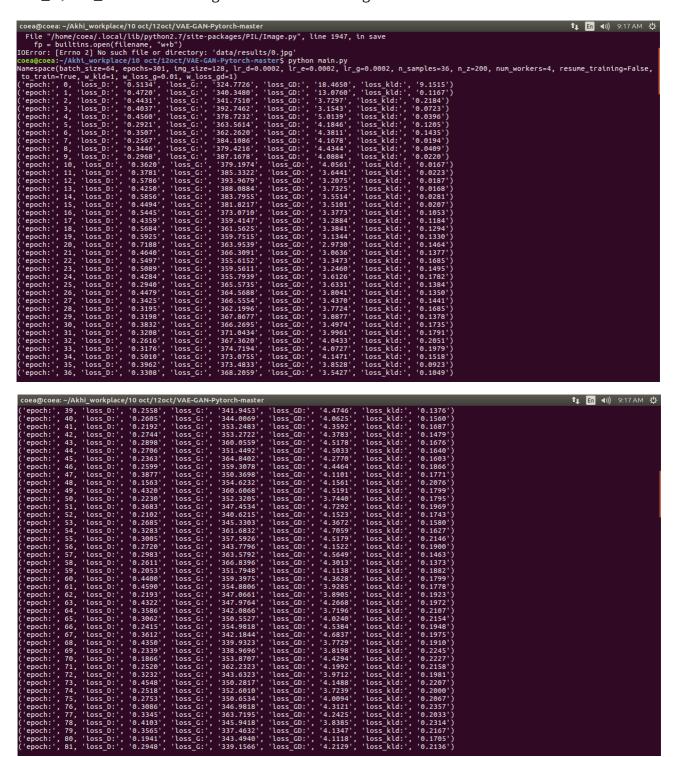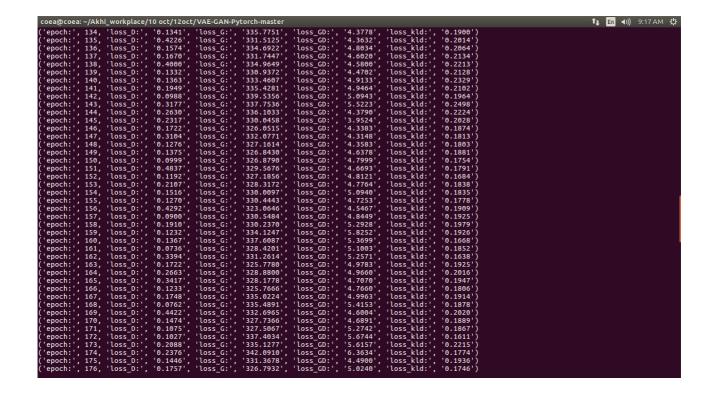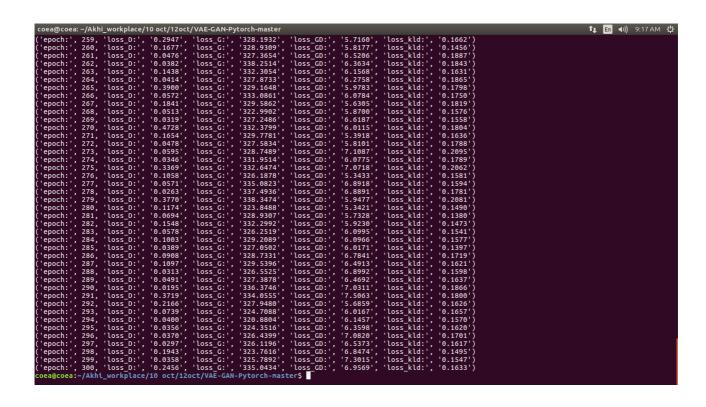Output :

Please check   loss_D, loss_G , loss_GD

loss_G, loss_GD is not converge. Is it unstable training.

coea@coea: ~/Akhi_workplace/10 oct/12oct/VAE-GAN-Pytorch-master   En 9:17 AM
  File "/home/coea/.local/lib/python2.7/site-packages/PIL/Image.py", line 1947, in save
    fp = builtins.open(filename, "w+b")
IOError: [Errno 2] No such file or directory: 'data/results/0.jpg'
coea@coea:~/Akhi_workplace/10 oct/12oct/VAE-GAN-Pytorch-master$ python main.py
Namespace(batch_size=64, epochs=301, img_size=128, lr_d=0.0002, lr_e=0.0002, lr_g=0.0002, n_samples=36, n_z=200, num_workers=4, resume_training=False,
to_train=True, w_kld=1, w_loss_g=0.01, w_loss_gd=1)
('epoch:', 0, 'loss_D:', '0.5134', 'loss_G:', '324.7726', 'loss_GD:', '18.4650', 'loss_kld:', '9.1515')
('epoch:', 1, 'loss_D:', '0.4720', 'loss_G:', '340.3480', 'loss_GD:', '13.0760', 'loss_kld:', '0.1167')
('epoch:', 2, 'loss_D:', '0.4431', 'loss_G:', '341.7510', 'loss_GD:', '3.7297', 'loss_kld:', '0.2184')
('epoch:', 3, 'loss_D:', '0.4037', 'loss_G:', '392.7462', 'loss_GD:', '3.1543', 'loss_kld:', '0.0723')
('epoch:', 4, 'loss_D:', '0.4560', 'loss_G:', '378.7232', 'loss_GD:', '5.0139', 'loss_kld:', '0.0396')
('epoch:', 5, 'loss_D:', '0.2921', 'loss_G:', '363.5614', 'loss_GD:', '4.1846', 'loss_kld:', '0.1205')
('epoch:', 6, 'loss_D:', '0.3507', 'loss_G:', '362.2620', 'loss_GD:', '4.3811', 'loss_kld:', '0.1435')
('epoch:', 7, 'loss_D:', '0.2567', 'loss_G:', '384.1086', 'loss_GD:', '4.1678', 'loss_kld:', '0.0194')
('epoch:', 8, 'loss_D:', '0.3446', 'loss_G:', '379.4216', 'loss_GD:', '4.4344', 'loss_kld:', '0.0409')
('epoch:', 9, 'loss_D:', '0.2968', 'loss_G:', '387.1678', 'loss_GD:', '4.0884', 'loss_kld:', '0.0220')
('epoch:', 10, 'loss_D:', '0.3620', 'loss_G:', '379.1974', 'loss_GD:', '4.0561', 'loss_kld:', '0.0167')
('epoch:', 11, 'loss_D:', '0.3781', 'loss_G:', '385.3322', 'loss_GD:', '3.6441', 'loss_kld:', '0.0223')
('epoch:', 12, 'loss_D:', '0.5786', 'loss_G:', '393.9679', 'loss_GD:', '3.2075', 'loss_kld:', '0.0187')
('epoch:', 13, 'loss_D:', '0.4250', 'loss_G:', '388.0884', 'loss_GD:', '3.7325', 'loss_kld:', '0.0168')
('epoch:', 14, 'loss_D:', '0.5856', 'loss_G:', '383.7955', 'loss_GD:', '3.5514', 'loss_kld:', '0.0281')
('epoch:', 15, 'loss_D:', '0.4494', 'loss_G:', '381.8217', 'loss_GD:', '3.5101', 'loss_kld:', '0.0207')
('epoch:', 16, 'loss_D:', '0.5445', 'loss_G:', '373.0710', 'loss_GD:', '3.3773', 'loss_kld:', '0.1053')
('epoch:', 17, 'loss_D:', '0.4359', 'loss_G:', '359.4147', 'loss_GD:', '3.2884', 'loss_kld:', '0.1184')
('epoch:', 18, 'loss_D:', '0.5684', 'loss_G:', '361.5625', 'loss_GD:', '3.3841', 'loss_kld:', '0.1294')
('epoch:', 19, 'loss_D:', '0.5925', 'loss_G:', '359.7515', 'loss_GD:', '3.1344', 'loss_kld:', '0.1330')
('epoch:', 20, 'loss_D:', '0.7188', 'loss_G:', '363.9539', 'loss_GD:', '2.9730', 'loss_kld:', '0.1464')
('epoch:', 21, 'loss_D:', '0.4640', 'loss_G:', '366.3091', 'loss_GD:', '3.0636', 'loss_kld:', '0.1377')
('epoch:', 22, 'loss_D:', '0.5497', 'loss_G:', '355.6152', 'loss_GD:', '3.3473', 'loss_kld:', '0.1685')
('epoch:', 23, 'loss_D:', '0.5089', 'loss_G:', '359.5611', 'loss_GD:', '3.2460', 'loss_kld:', '0.1495')
('epoch:', 24, 'loss_D:', '0.4284', 'loss_G:', '355.7939', 'loss_GD:', '3.6126', 'loss_kld:', '0.1782')
('epoch:', 25, 'loss_D:', '0.2940', 'loss_G:', '365.5735', 'loss_GD:', '3.6331', 'loss_kld:', '0.1384')
('epoch:', 26, 'loss_D:', '0.4479', 'loss_G:', '364.5688', 'loss_GD:', '3.8041', 'loss_kld:', '0.1350')
('epoch:', 27, 'loss_D:', '0.3425', 'loss_G:', '366.5554', 'loss_GD:', '3.4370', 'loss_kld:', '0.1441')
('epoch:', 28, 'loss_D:', '0.3195', 'loss_G:', '362.1996', 'loss_GD:', '3.7724', 'loss_kld:', '0.1685')
('epoch:', 29, 'loss_D:', '0.3198', 'loss_G:', '367.8677', 'loss_GD:', '3.8877', 'loss_kld:', '0.1378')
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('epoch:', 31, 'loss_D:', '0.3208', 'loss_G:', '371.0434', 'loss_GD:', '3.9961', 'loss_kld:', '0.1791')
('epoch:', 32, 'loss_D:', '0.2616', 'loss_G:', '367.3620', 'loss_GD:', '4.0433', 'loss_kld:', '0.2051')
('epoch:', 33, 'loss_D:', '0.3176', 'loss_G:', '374.7194', 'loss_GD:', '4.0727', 'loss_kld:', '0.1979')
('epoch:', 34, 'loss_D:', '0.5010', 'loss_G:', '373.0755', 'loss_GD:', '4.1471', 'loss_kld:', '0.1518')
('epoch:', 35, 'loss_D:', '0.3962', 'loss_G:', '373.4833', 'loss_GD:', '3.8528', 'loss_kld:', '0.0923')
('epoch:', 36, 'loss_D:', '0.3308', 'loss_G:', '368.2059', 'loss_GD:', '3.5427', 'loss_kld:', '0.1049')

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('epoch:', 39, 'loss_D:', '0.2558', 'loss_G:', '341.9453', 'loss_GD:', '4.4746', 'loss_kld:', '0.1376')
('epoch:', 40, 'loss_D:', '0.2605', 'loss_G:', '344.0069', 'loss_GD:', '4.0625', 'loss_kld:', '0.1560')
('epoch:', 41, 'loss_D:', '0.2192', 'loss_G:', '353.2483', 'loss_GD:', '4.3592', 'loss_kld:', '0.1687')
('epoch:', 42, 'loss_D:', '0.2744', 'loss_G:', '353.2722', 'loss_GD:', '4.3783', 'loss_kld:', '0.1479')
('epoch:', 43, 'loss_D:', '0.2898', 'loss_G:', '360.0559', 'loss_GD:', '4.5178', 'loss_kld:', '0.1676')
('epoch:', 44, 'loss_D:', '0.2706', 'loss_G:', '351.4492', 'loss_GD:', '4.5033', 'loss_kld:', '0.1640')
('epoch:', 45, 'loss_D:', '0.2363', 'loss_G:', '364.8402', 'loss_GD:', '4.2770', 'loss_kld:', '0.1603')
('epoch:', 46, 'loss_D:', '0.2599', 'loss_G:', '359.3078', 'loss_GD:', '4.4464', 'loss_kld:', '0.1866')
('epoch:', 47, 'loss_D:', '0.3877', 'loss_G:', '350.3698', 'loss_GD:', '4.1101', 'loss_kld:', '0.1771')
('epoch:', 48, 'loss_D:', '0.1563', 'loss_G:', '354.6232', 'loss_GD:', '4.1561', 'loss_kld:', '0.2076')
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('epoch:', 50, 'loss_D:', '0.2230', 'loss_G:', '352.3205', 'loss_GD:', '3.7440', 'loss_kld:', '0.1795')
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('epoch:', 52, 'loss_D:', '0.2102', 'loss_G:', '340.6215', 'loss_GD:', '4.1523', 'loss_kld:', '0.1743')
('epoch:', 53, 'loss_D:', '0.2685', 'loss_G:', '345.3303', 'loss_GD:', '4.3672', 'loss_kld:', '0.1580')
('epoch:', 54, 'loss_D:', '0.3283', 'loss_G:', '361.6832', 'loss_GD:', '4.7059', 'loss_kld:', '0.1627')
('epoch:', 55, 'loss_D:', '0.3005', 'loss_G:', '357.5926', 'loss_GD:', '4.5179', 'loss_kld:', '0.2146')
('epoch:', 56, 'loss_D:', '0.2720', 'loss_G:', '343.7796', 'loss_GD:', '4.1522', 'loss_kld:', '0.1900')
('epoch:', 57, 'loss_D:', '0.2983', 'loss_G:', '363.5792', 'loss_GD:', '4.5649', 'loss_kld:', '0.1463')
('epoch:', 58, 'loss_D:', '0.2611', 'loss_G:', '366.8396', 'loss_GD:', '4.3013', 'loss_kld:', '0.1373')
('epoch:', 59, 'loss_D:', '0.2053', 'loss_G:', '351.7948', 'loss_GD:', '4.1138', 'loss_kld:', '0.1882')
('epoch:', 60, 'loss_D:', '0.4400', 'loss_G:', '359.3975', 'loss_GD:', '4.3628', 'loss_kld:', '0.1799')
('epoch:', 61, 'loss_D:', '0.4590', 'loss_G:', '354.8806', 'loss_GD:', '3.9285', 'loss_kld:', '0.1778')
('epoch:', 62, 'loss_D:', '0.2193', 'loss_G:', '347.0661', 'loss_GD:', '3.8905', 'loss_kld:', '0.1923')
('epoch:', 63, 'loss_D:', '0.4322', 'loss_G:', '347.9764', 'loss_GD:', '4.2668', 'loss_kld:', '0.1972')
('epoch:', 64, 'loss_D:', '0.3586', 'loss_G:', '342.0866', 'loss_GD:', '3.7196', 'loss_kld:', '0.2107')
('epoch:', 65, 'loss_D:', '0.3062', 'loss_G:', '350.5527', 'loss_GD:', '4.0240', 'loss_kld:', '0.2154')
('epoch:', 66, 'loss_D:', '0.2415', 'loss_G:', '354.9818', 'loss_GD:', '4.5384', 'loss_kld:', '0.1948')
('epoch:', 67, 'loss_D:', '0.3612', 'loss_G:', '342.1844', 'loss_GD:', '4.6837', 'loss_kld:', '0.1975')
('epoch:', 68, 'loss_D:', '0.4350', 'loss_G:', '339.9323', 'loss_GD:', '3.7729', 'loss_kld:', '0.1910')
('epoch:', 69, 'loss_D:', '0.2339', 'loss_G:', '338.9696', 'loss_GD:', '3.8198', 'loss_kld:', '0.2245')
('epoch:', 70, 'loss_D:', '0.1866', 'loss_G:', '353.8707', 'loss_GD:', '4.4294', 'loss_kld:', '0.2227')
('epoch:', 71, 'loss_D:', '0.2520', 'loss_G:', '362.2323', 'loss_GD:', '4.1992', 'loss_kld:', '0.2158')
('epoch:', 72, 'loss_D:', '0.3232', 'loss_G:', '343.6323', 'loss_GD:', '3.9712', 'loss_kld:', '0.1981')
('epoch:', 73, 'loss_D:', '0.4548', 'loss_G:', '350.2817', 'loss_GD:', '4.1488', 'loss_kld:', '0.2207')
('epoch:', 74, 'loss_D:', '0.2518', 'loss_G:', '352.6010', 'loss_GD:', '3.7239', 'loss_kld:', '0.2000')
('epoch:', 75, 'loss_D:', '0.2753', 'loss_G:', '350.6534', 'loss_GD:', '4.0094', 'loss_kld:', '0.2067')
('epoch:', 76, 'loss_D:', '0.3086', 'loss_G:', '346.9818', 'loss_GD:', '4.3121', 'loss_kld:', '0.2357')
('epoch:', 77, 'loss_D:', '0.3345', 'loss_G:', '363.7195', 'loss_GD:', '4.2425', 'loss_kld:', '0.2033')
('epoch:', 78, 'loss_D:', '0.4103', 'loss_G:', '345.9418', 'loss_GD:', '3.8385', 'loss_kld:', '0.2314')
('epoch:', 79, 'loss_D:', '0.3565', 'loss_G:', '337.4632', 'loss_GD:', '4.1347', 'loss_kld:', '0.2167')
('epoch:', 80, 'loss_D:', '0.1941', 'loss_G:', '343.4940', 'loss_GD:', '4.1118', 'loss_kld:', '0.1705')
('epoch:', 81, 'loss_D:', '0.2948', 'loss_G:', '339.1566', 'loss_GD:', '4.2129', 'loss_kld:', '0.2136')

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('epoch:', 84, 'loss_D:', '0.1397', 'loss_G:', '340.0622', 'loss_GD:', '4.3721', 'loss_kld:', '0.2151')
('epoch:', 85, 'loss_D:', '0.2235', 'loss_G:', '340.8265', 'loss_GD:', '4.3622', 'loss_kld:', '0.1923')
('epoch:', 86, 'loss_D:', '0.2198', 'loss_G:', '347.1862', 'loss_GD:', '4.6545', 'loss_kld:', '0.2060')
('epoch:', 87, 'loss_D:', '0.0829', 'loss_G:', '342.4987', 'loss_GD:', '4.5906', 'loss_kld:', '0.2349')
('epoch:', 88, 'loss_D:', '0.4005', 'loss_G:', '342.7727', 'loss_GD:', '4.7351', 'loss_kld:', '0.2273')
('epoch:', 89, 'loss_D:', '0.3482', 'loss_G:', '347.5073', 'loss_GD:', '4.1758', 'loss_kld:', '0.1886')
('epoch:', 90, 'loss_D:', '0.2804', 'loss_G:', '339.1584', 'loss_GD:', '4.0109', 'loss_kld:', '0.2032')
('epoch:', 91, 'loss_D:', '0.2141', 'loss_G:', '345.1808', 'loss_GD:', '4.3038', 'loss_kld:', '0.1887')
('epoch:', 92, 'loss_D:', '0.3070', 'loss_G:', '346.0284', 'loss_GD:', '4.8489', 'loss_kld:', '0.2266')
('epoch:', 93, 'loss_D:', '0.3346', 'loss_G:', '342.3311', 'loss_GD:', '4.1378', 'loss_kld:', '0.1965')
('epoch:', 94, 'loss_D:', '0.4208', 'loss_G:', '343.6647', 'loss_GD:', '4.4491', 'loss_kld:', '0.2051')
('epoch:', 95, 'loss_D:', '0.2872', 'loss_G:', '343.8027', 'loss_GD:', '4.2556', 'loss_kld:', '0.1931')
('epoch:', 96, 'loss_D:', '0.3268', 'loss_G:', '340.3516', 'loss_GD:', '3.8561', 'loss_kld:', '0.1946')
('epoch:', 97, 'loss_D:', '0.1799', 'loss_G:', '333.7291', 'loss_GD:', '4.2878', 'loss_kld:', '0.2035')
('epoch:', 98, 'loss_D:', '0.2549', 'loss_G:', '350.1153', 'loss_GD:', '4.6396', 'loss_kld:', '0.2107')
('epoch:', 99, 'loss_D:', '0.1813', 'loss_G:', '335.1623', 'loss_GD:', '4.4095', 'loss_kld:', '0.2017')
('epoch:', 100, 'loss_D:', '0.3313', 'loss_G:', '339.4012', 'loss_GD:', '4.5991', 'loss_kld:', '0.2651')
('epoch:', 101, 'loss_D:', '0.2407', 'loss_G:', '338.2145', 'loss_GD:', '3.9121', 'loss_kld:', '0.1835')
('epoch:', 102, 'loss_D:', '0.2243', 'loss_G:', '335.4703', 'loss_GD:', '4.4485', 'loss_kld:', '0.2230')
('epoch:', 103, 'loss_D:', '0.1870', 'loss_G:', '345.1571', 'loss_GD:', '4.8861', 'loss_kld:', '0.2007')
('epoch:', 104, 'loss_D:', '0.2215', 'loss_G:', '351.6576', 'loss_GD:', '4.5656', 'loss_kld:', '0.1898')
('epoch:', 105, 'loss_D:', '0.3950', 'loss_G:', '348.2862', 'loss_GD:', '4.7366', 'loss_kld:', '0.2200')
('epoch:', 106, 'loss_D:', '0.2957', 'loss_G:', '336.8869', 'loss_GD:', '4.1436', 'loss_kld:', '0.1894')
('epoch:', 107, 'loss_D:', '0.3131', 'loss_G:', '337.7999', 'loss_GD:', '4.0135', 'loss_kld:', '0.1944')
('epoch:', 108, 'loss_D:', '0.1885', 'loss_G:', '335.0226', 'loss_GD:', '4.3855', 'loss_kld:', '0.2137')
('epoch:', 109, 'loss_D:', '0.1600', 'loss_G:', '336.3211', 'loss_GD:', '4.9428', 'loss_kld:', '0.2731')
('epoch:', 110, 'loss_D:', '0.2345', 'loss_G:', '340.7648', 'loss_GD:', '4.6294', 'loss_kld:', '0.2038')
('epoch:', 111, 'loss_D:', '0.0794', 'loss_G:', '330.1382', 'loss_GD:', '5.5438', 'loss_kld:', '0.2164')
('epoch:', 112, 'loss_D:', '0.0425', 'loss_G:', '354.3736', 'loss_GD:', '5.9334', 'loss_kld:', '0.2037')
('epoch:', 113, 'loss_D:', '0.2920', 'loss_G:', '354.5767', 'loss_GD:', '5.2054', 'loss_kld:', '0.2237')
('epoch:', 114, 'loss_D:', '0.1497', 'loss_G:', '336.2735', 'loss_GD:', '4.8259', 'loss_kld:', '0.2119')
('epoch:', 115, 'loss_D:', '0.3557', 'loss_G:', '344.1545', 'loss_GD:', '5.0016', 'loss_kld:', '0.2209')
('epoch:', 116, 'loss_D:', '0.2279', 'loss_G:', '343.2917', 'loss_GD:', '4.0449', 'loss_kld:', '0.2002')
('epoch:', 117, 'loss_D:', '0.2812', 'loss_G:', '342.6067', 'loss_GD:', '4.7463', 'loss_kld:', '0.2131')
('epoch:', 118, 'loss_D:', '0.2798', 'loss_G:', '344.0529', 'loss_GD:', '4.1994', 'loss_kld:', '0.2067')
('epoch:', 119, 'loss_D:', '0.5328', 'loss_G:', '330.7812', 'loss_GD:', '4.0153', 'loss_kld:', '0.2034')
('epoch:', 120, 'loss_D:', '0.2818', 'loss_G:', '337.6898', 'loss_GD:', '4.3610', 'loss_kld:', '0.1913')
('epoch:', 121, 'loss_D:', '0.0842', 'loss_G:', '346.1411', 'loss_GD:', '4.7127', 'loss_kld:', '0.2039')
('epoch:', 122, 'loss_D:', '0.1215', 'loss_G:', '333.6287', 'loss_GD:', '5.1217', 'loss_kld:', '0.2093')
('epoch:', 123, 'loss_D:', '0.4186', 'loss_G:', '345.8789', 'loss_GD:', '4.2040', 'loss_kld:', '0.2024')
('epoch:', 124, 'loss_D:', '0.3069', 'loss_G:', '332.6315', 'loss_GD:', '4.1726', 'loss_kld:', '0.2192')
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('epoch:', 126, 'loss_D:', '0.2023', 'loss_G:', '338.8457', 'loss_GD:', '4.0681', 'loss_kld:', '0.1893')

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('epoch:', 134, 'loss_D:', '0.1341', 'loss_G:', '335.7751', 'loss_GD:', '4.3778', 'loss_kld:', '0.1900')
('epoch:', 135, 'loss_D:', '0.4226', 'loss_G:', '331.5125', 'loss_GD:', '4.3632', 'loss_kld:', '0.2014')
('epoch:', 136, 'loss_D:', '0.1574', 'loss_G:', '334.6922', 'loss_GD:', '4.8034', 'loss_kld:', '0.2064')
('epoch:', 137, 'loss_D:', '0.1670', 'loss_G:', '331.7447', 'loss_GD:', '4.6020', 'loss_kld:', '0.2134')
('epoch:', 138, 'loss_D:', '0.4000', 'loss_G:', '334.9649', 'loss_GD:', '4.5800', 'loss_kld:', '0.2213')
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coea@coea:~/Akhi_workplace/10 oct/12oct/VAE-GAN-Pytorch-master$
```

This is the generated image :

loss_G , loss_GD is not converged. So what is the problem.

Is GAN has not achieved Nash equilibrium

Please give the paper that you have implemed. Any source paper or material for this code.