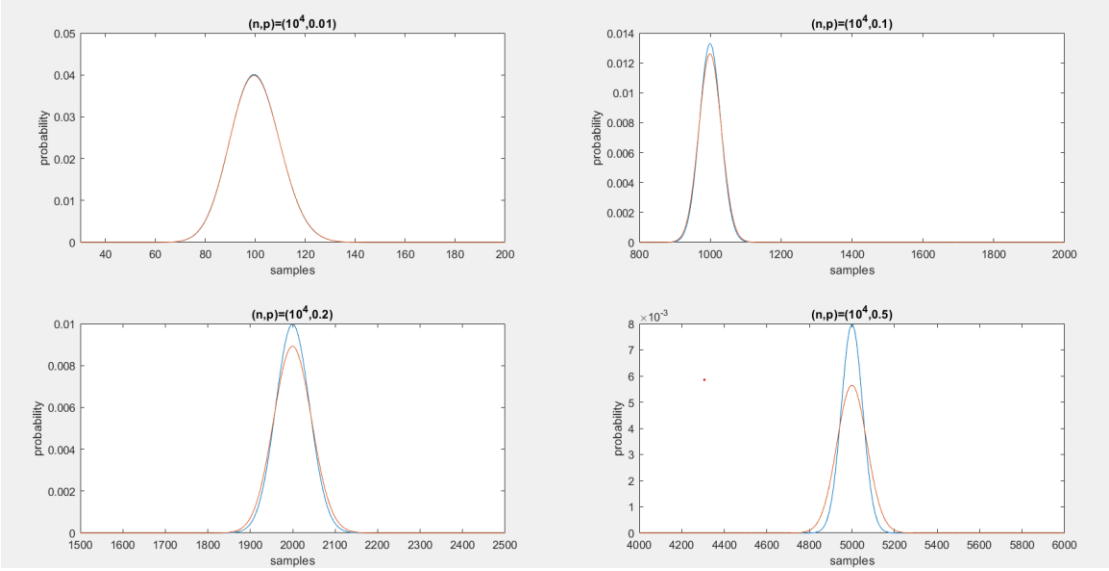
1(c)

n	r	p=0.1	p=0.2	p=0.25	p=0.3	p=0.4	p=0.5	p=0.6	p=0.7	p=0.8	p=0.9
1	0	0.9	0.8	0.75	0.7	0.6	0.5	0.4	0.3	0.2	0.1
	1	1	1	1	1	1	1	1	1	1	1
2	0	0.81	0.64	0.5625	0.49	0.36	0.25	0.16	0.09	0.04	0.01
	1	0.99	0.96	0.9375	0.91	0.84	0.75	0.64	0.51	0.36	0.19
	2	1	1	1	1	1	1	1	1	1	1
3	0	0.729	0.512	0.42188	0.343	0.216	0.125	0.064	0.027	0.008	0.001
	1	0.972	0.896	0.84375	0.784	0.648	0.5	0.352	0.216	0.104	0.028
	2	0.999	0.992	0.98438	0.973	0.936	0.875	0.784	0.657	0.488	0.271
	3	1	1	1	1	1	1	1	1	1	1
4	0	0.6561	0.4096	0.31641	0.2401	0.1296	0.0625	0.0256	0.0081	0.0016	0.0001
	1	0.9477	0.8192	0.73828	0.6517	0.4752	0.3125	0.1792	0.0837	0.0272	0.0037
	2	0.9963	0.9728	0.94922	0.9163	0.8208	0.6875	0.5248	0.3483	0.1808	0.0523
	3	0.9999	0.9984	0.99609	0.9919	0.9744	0.9375	0.8704	0.7599	0.5904	0.3439
	4	1	1	1	1	1	1	1	1	1	1
5	0	0.59049	0.32768	0.2373	0.16807	0.07776	0.03125	0.01024	0.00243	0.00032	1e-05
	1	0.91854	0.73728	0.63281	0.52822	0.33696	0.1875	0.08704	0.03078	0.00672	0.00046
	2	0.99144	0.94208	0.89648	0.83692	0.68256	0.5	0.31744	0.16308	0.05792	0.00856
	3	0.99954	0.99328	0.98438	0.96922	0.91296	0.8125	0.66304	0.47178	0.26272	0.08146
	4	0.99999	0.99968	0.99902	0.99757	0.98976	0.96875	0.92224	0.83193	0.67232	0.40951
	5	1	1	1	1	1	1	1	1	1	1
6	0	0.53144	0.26214	0.17798	0.11765	0.046656	0.015625	0.004096	0.000729	6.4e-05	1e-06
	1	0.88574	0.65536	0.53394	0.42017	0.23328	0.10938	0.04096	0.010935	0.0016	5.5e-05
	2	0.98415	0.90112	0.83057	0.74431	0.54432	0.34375	0.1792	0.07047	0.01696	0.00127
	3	0.99873	0.98304	0.9624	0.92953	0.8208	0.65625	0.45568	0.25569	0.09888	0.01585
	4	0.99995	0.9984	0.99536	0.98906	0.95904	0.89062	0.76672	0.57983	0.34464	0.11426
	5	1	0.99994	0.99976	0.99927	0.9959	0.98438	0.95334	0.88235	0.73786	0.46856
	6	1	1	1	1	1	1	1	1	1	1
7	0	0.4783	0.20972	0.13348	0.082354	0.027994	0.0078125	0.0016384	0.0002187	1.28e-05	1e-07
	1	0.85031	0.57672	0.44495	0.32942	0.15863	0.0625	0.018842	0.0037908	0.0003712	6.4e-06
	2	0.97431	0.85197	0.75641	0.64707	0.4199	0.22656	0.096256	0.028796	0.004672	0.0001765
	3	0.99727	0.96666	0.92944	0.87396	0.71021	0.5	0.28979	0.12604	0.033344	0.002728
	4	0.99982	0.99533	0.98712	0.9712	0.90374	0.77344	0.5801	0.35293	0.14803	0.025691
	5	0.99999	0.99963	0.99866	0.99621	0.98116	0.9375	0.84137	0.67058	0.42328	0.14969
	6	1	0.99999	0.99994	0.99978	0.99836	0.99219	0.97201	0.91765	0.79028	0.5217
	7	1	1	1	1	1	1	1	1	1	1

1.(d)

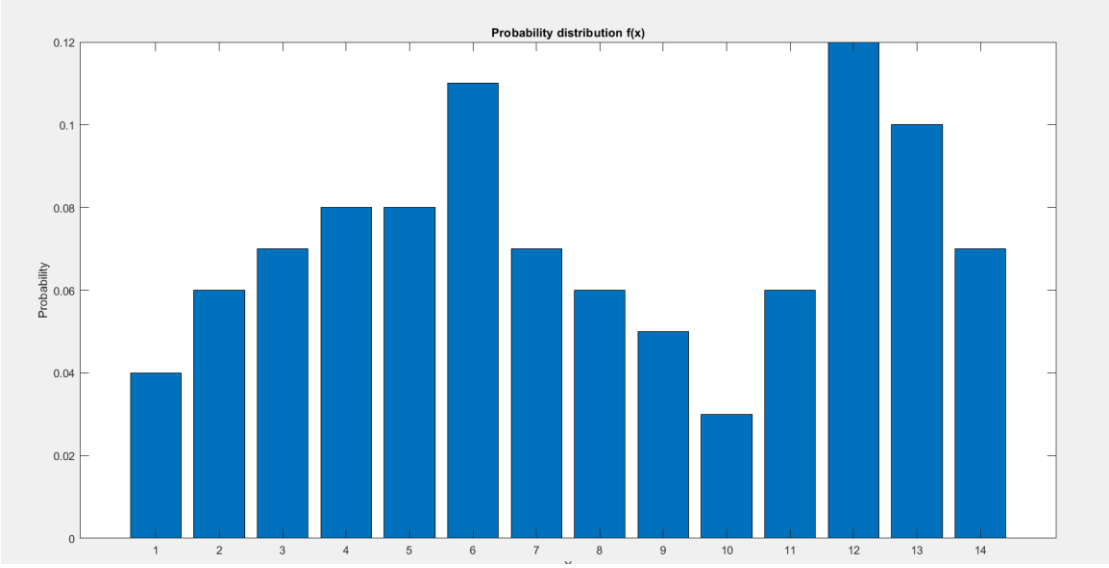
r	m=5.5	m=6.0	m=6.5	m=7.0	m=7.5	m=8.0	m=8.5	m=9.0	m=9.5
0	0.0040868	0.0024788	0.0015034	0.00091188	0.00055308	0.00033546	0.00020347	0.00012341	7.4852e-05
1	0.026564	0.017351	0.011276	0.0072951	0.0047012	0.0030192	0.0019329	0.0012341	0.00078594
2	0.088376	0.061969	0.043036	0.029636	0.020257	0.013754	0.0092832	0.0062322	0.0041636
3	0.2017	0.1512	0.11185	0.081765	0.059145	0.04238	0.030109	0.021226	0.01486
4	0.35752	0.28506	0.22367	0.17299	0.13206	0.099632	0.074364	0.054964	0.040263
5	0.52892	0.44568	0.36904	0.30071	0.24144	0.19124	0.1496	0.11569	0.088528
6	0.68604	0.6063	0.52652	0.44971	0.37815	0.31337	0.25618	0.20678	0.16495
7	0.80949	0.74398	0.67276	0.59871	0.52464	0.45296	0.3856	0.3239	0.26866
8	0.89436	0.84724	0.79157	0.72909	0.66197	0.59255	0.52311	0.45565	0.39182
9	0.94622	0.91608	0.87738	0.8305	0.77641	0.71662	0.65297	0.58741	0.52183
10	0.97475	0.95738	0.93316	0.90148	0.86224	0.81589	0.76336	0.70599	0.64533
11	0.98901	0.97991	0.96612	0.94665	0.92076	0.88808	0.84866	0.80301	0.75199
12	0.99555	0.99117	0.98397	0.973	0.95733	0.9362	0.90908	0.87577	0.83643
13	0.99831	0.99637	0.9929	0.98719	0.97844	0.96582	0.94859	0.92615	0.89814
14	0.9994	0.9986	0.99704	0.99428	0.98974	0.98274	0.97257	0.95853	0.94001
15	0.9998	0.99949	0.99884	0.99759	0.99539	0.99177	0.98617	0.97796	0.96653
16	0.99994	0.99983	0.99957	0.99904	0.99804	0.99628	0.99339	0.98889	0.98227
17	0.99998	0.99994	0.99985	0.99964	0.99921	0.99841	0.997	0.99468	0.99107
18	0.99999	0.99998	0.99995	0.99987	0.9997	0.99935	0.9987	0.99757	0.99572
19	1	0.99999	0.99998	0.99996	0.99989	0.99975	0.99947	0.99894	0.99804
20	1	1	1	0.99999	0.99996	0.99991	0.99979	0.99956	0.99914
21	1	1	1	1	0.99999	0.99997	0.99992	0.99983	0.99964
22	1	1	1	1	1	0.99999	0.99997	0.99993	0.99985
21	1	1	1	1	1	1	0.99999	0.99998	0.99994
24	1	1	1	1	1	1	1	0.99999	0.99998

1.(e)

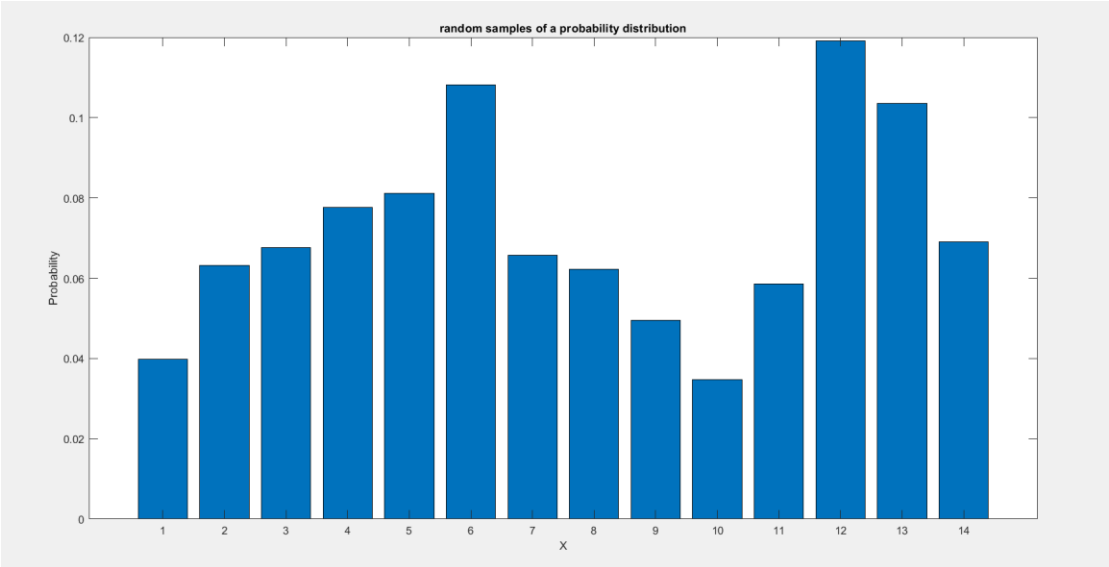


The number of sample space is 10^4 for four plots, as the p goes bigger , the approximation is less accurate. For p = 0.1, the two distribution had 0.001 gap. For p=0.2, the two distribution had 0.001 gap. For the p=0.5, the two distribution had 0.002 gap.Since n*p is the important factor for the precise approximation , as p goes smaller , binomials can be more fit to poisson .

2.(a)



2.(b)



Plots in 2.(a) and 2.(b) look alike since the number of sample is quite big