

Вариант №5

Для набора данных проведите кодирование одного (произвольного) категориального признака с использованием метода "ONE-HOT ENCODING". 2

Для набора данных для одного (произвольного) числового признака проведите обнаружение и удаление выбросов на основе межквартильного размаха. 12

Для НАБОРА ДАННЫХ ПРОВЕДИТЕ КОДИРОВАНИЕ ОДНОГО (ПРОИЗВОЛЬНОГО) КАТЕГОРИАЛЬНОГО ПРИЗНАКА С ИСПОЛЬЗОВАНИЕМ МЕТОДА "ONE-HOT ENCODING".

```
import pandas as pd

# загрузка набора данных
data = pd.read_csv("titanic.csv")

# выбор признака для кодирования
feature_to_encode = "Sex"

# кодирование методом "one-hot encoding"
one_hot_encoded =
pd.get_dummies(data[feature_to_encode],
prefix=feature_to_encode)

# добавление закодированных признаков в набор данных
data = pd.concat([data, one_hot_encoded], axis=1)

# удаление исходного признака
data = data.drop(columns=[feature_to_encode])

# экспорт результатов в файл Excel
data.to_excel("titanic_encoded.xlsx", index=False)
```

PassengerId	Survived	Pclass	Name	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked	Sex_female	Sex_male
892	0	3	Kelly, Mr. James	34.5	0	0	330911	7.8292		Q	0	1
893	1	3	Wilkes, Mrs. James (Ellen Needs)	47	1	0	363272	7		S	1	0
894	0	2	Myles, Mr. Thomas Francis	62	0	0	240276	9.6875		Q	0	1
895	0	3	Wirz, Mr. Albert	27	0	0	315154	8.6625		S	0	1
896	1	3	Hirvonen, Mrs. Alexander (Helga E Lindqvist)	22	1	1	3101298	12.2875		S	1	0
897	0	3	Svensson, Mr. Johan Cervin	14	0	0	7538	9.225		S	0	1
898	1	3	Connolly, Miss. Kate	30	0	0	330972	7.6292		Q	1	0
899	0	2	Caldwell, Mr. Albert Francis	26	1	1	248738	29		S	0	1
900	1	3	Abraham, Mrs. Joseph (Sophie Halaut Easu)	18	0	0	2657	7.2292		C	1	0
901	0	3	Davies, Mr. John Samuel	21	2	0	A/4 48871	24.15		S	0	1
902	0	3	Ilieff, Mr. Ylio		0	0	349220	7.8958		S	0	1
903	0	1	Jones, Mr. Charles Cresson	46	0	0	694	26		S	0	1
904	1	1	Snyder, Mrs. John Pillsbury (Nelle Stevenson)	23	1	0	21228	82.2667	B45	S	1	0
905	0	2	Howard, Mr. Benjamin	63	1	0	24065	26		S	0	1
906	1	1	Chaffee, Mrs. Herbert Fuller (Carrie Constance Toogood)	47	1	0	W.E.P. 5734	61.175	E31	S	1	0
907	1	2	del Carlo, Mrs. Sebastiano (Argenia Genovesi)	24	1	0	SC/PARIS 2167	27.7208		C	1	0
908	0	2	Keane, Mr. Daniel	35	0	0	233734	12.35		Q	0	1
909	0	3	Assaf, Mr. Gerios	21	0	0	2692	7.225		C	0	1
910	1	3	Ilmakangas, Miss. Ida Livija	27	1	0	STON/O2. 3101270	7.925		S	1	0
911	1	3	Assaf Khalil, Mrs. Mariana (Miriam)"	45	0	0	2696	7.225		C	1	0
912	0	1	Rothschild, Mr. Martin	55	1	0	PC 17603	59.4		C	0	1
913	0	3	Olsen, Master. Artur Karl	9	0	1	C 17368	3.1708		S	0	1
914	1	1	Flegenheim, Mrs. Alfred (Antoinette)		0	0	PC 17598	31.6833		S	1	0
915	0	1	Williams, Mr. Richard Norris II	21	0	1	PC 17597	61.3792		C	0	1
916	1	1	Ryerson, Mrs. Arthur Larned (Emily Maria Borie)	48	1	3	PC 17608	262.375	B57 B59 B63 B66	C	1	0
917	0	3	Robins, Mr. Alexander A	50	1	0	A/5. 3337	14.5		S	0	1
918	1	1	Ostby, Miss. Helene Ragnhild	22	0	1	113509	61.9792	B36	C	1	0
919	0	3	Daher, Mr. Shedid	22.5	0	0	2698	7.225		C	0	1
920	0	1	Brady, Mr. John Bertram	41	0	0	113054	30.5	A21	S	0	1
921	0	3	Samaan, Mr. Elias		2	0	2662	21.6792		C	0	1
922	0	2	Louch, Mr. Charles Alexander	50	1	0	SC/AH 3085	26		S	0	1
923	0	2	Jefferys, Mr. Clifford Thomas	24	2	0	C.A. 31029	31.5		S	0	1
924	1	3	Dean, Mrs. Bertram (Eva Georgetta Light)	33	1	2	C.A. 2315	20.575		S	1	0
925	1	3	Johnston, Mrs. Andrew G (Elizabeth Lily" Watson)"		1	2	W./C. 6607	23.45		S	1	0
926	0	1	Mock, Mr. Philipp Edmund	30	1	0	13236	57.75	C78	C	0	1
927	0	3	Katavelas, Mr. Vassilios (Catavelas Vassilios)"	18.5	0	0	2682	7.2292		C	0	1
928	1	3	Roth, Miss. Sarah A		0	0	342712	8.05		S	1	0
929	1	3	Cacic, Miss. Manda	21	0	0	315087	8.6625		S	1	0
930	0	3	Sap, Mr. Julius	25	0	0	345768	9.5		S	0	1
931	0	3	Hee, Mr. Ling		0	0	1601	56.4958		S	0	1
932	0	3	Karun, Mr. Franz	39	0	1	349256	13.4167		C	0	1
933	0	1	Franklin, Mr. Thomas Parham		0	0	113778	26.55	D34	S	0	1
934	0	3	Goldsmith, Mr. Nathan	41	0	0	3101263	7.85		S	0	1
935	1	2	Corbett, Mrs. Walter H (Irene Colvin)	30	0	0	237249	13		S	1	0
936	1	1	Kimball, Mrs. Edwin Nelson Jr (Gertrude Parsons)	45	1	0	11753	52.5542	D19	S	1	0
937	0	3	Peltomaki, Mr. Nikolai Johannes	25	0	0	STON/O 2. 3101291	7.925		S	0	1
938	0	1	Chevre, Mr. Paul Romaine	45	0	0	PC 17594	29.7	A9	C	0	1
939	0	3	Shaughnessy, Mr. Patrick		0	0	370374	7.75		Q	0	1
940	1	1	Bucknell, Mrs. William Robert (Emma Eliza Ward)	60	0	0	11813	76.2917	D15	C	1	0
941	1	3	Coutts, Mrs. William (Winnie Minnie" Treanor)"	36	0	2	C.A. 37671	15.9		S	1	0

942	0	1	Smith, Mr. Lucien Philip	24	1	0	13695	60	C31	S	0	1
943	0	2	Pulbaum, Mr. Franz	27	0	0	SC/PARIS 2168	15.0333		C	0	1
944	1	2	Hocking, Miss. Ellen Nellie""	20	2	1	29105	23		S	1	0
945	1	1	Fortune, Miss. Ethel Flora	28	3	2	19950	263	C23 C25 C27	S	1	0
946	0	2	Mangiavacchi, Mr. Serafino Emilio		0	0	SC/A.3 2861	15.5792		C	0	1
947	0	3	Rice, Master. Albert	10	4	1	382652	29.125		Q	0	1
948	0	3	Cor, Mr. Bartol	35	0	0	349230	7.8958		S	0	1
949	0	3	Abelseth, Mr. Olaus Jorgensen	25	0	0	348122	7.65	F G63	S	0	1
950	0	3	Davison, Mr. Thomas Henry		1	0	386525	16.1		S	0	1
951	1	1	Chaudanson, Miss. Victorine	36	0	0	PC 17608	262.375	B61	C	1	0
952	0	3	Dika, Mr. Mirko	17	0	0	349232	7.8958		S	0	1
953	0	2	McCrae, Mr. Arthur Gordon	32	0	0	237216	13.5		S	0	1
954	0	3	Bjorklund, Mr. Ernst Herbert	18	0	0	347090	7.75		S	0	1
955	1	3	Bradley, Miss. Bridget Delia	22	0	0	334914	7.725		Q	1	0
B57 B59 B63												
956	0	1	Ryerson, Master. John Borie	13	2	2	PC 17608	262.375	B66	C	0	1
957	1	2	Corey, Mrs. Percy C (Mary Phyllis Elizabeth Miller)		0	0	F.C.C. 13534	21		S	1	0
958	1	3	Burns, Miss. Mary Delia	18	0	0	330963	7.8792		Q	1	0
959	0	1	Moore, Mr. Clarence Bloomfield	47	0	0	113796	42.4		S	0	1
960	0	1	Tucker, Mr. Gilbert Milligan Jr	31	0	0	2543	28.5375	C53	C	0	1
961	1	1	Fortune, Mrs. Mark (Mary McDougald)	60	1	4	19950	263	C23 C25 C27	S	1	0
962	1	3	Mulvihill, Miss. Bertha E	24	0	0	382653	7.75		Q	1	0
963	0	3	Minkoff, Mr. Lazar	21	0	0	349211	7.8958		S	0	1
964	1	3	Nieminen, Miss. Manta Josefina	29	0	0	3101297	7.925		S	1	0
965	0	1	Ovies y Rodriguez, Mr. Servando	28.5	0	0	PC 17562	27.7208	D43	C	0	1
966	1	1	Geiger, Miss. Amalie	35	0	0	113503	211.5	C130	C	1	0
967	0	1	Keeping, Mr. Edwin	32.5	0	0	113503	211.5	C132	C	0	1
968	0	3	Miles, Mr. Frank		0	0	359306	8.05		S	0	1
969	1	1	Cornell, Mrs. Robert Clifford (Malvina Helen Lamson)	55	2	0	11770	25.7	C101	S	1	0
970	0	2	Aldworth, Mr. Charles Augustus	30	0	0	248744	13		S	0	1
971	1	3	Doyle, Miss. Elizabeth	24	0	0	368702	7.75		Q	1	0
972	0	3	Boulos, Master. Akar	6	1	1	2678	15.2458		C	0	1
973	0	1	Straus, Mr. Isidor	67	1	0	PC 17483	221.7792	C55 C57	S	0	1
974	0	1	Case, Mr. Howard Brown	49	0	0	19924	26		S	0	1
975	0	3	Demetri, Mr. Marinko		0	0	349238	7.8958		S	0	1
976	0	2	Lamb, Mr. John Joseph		0	0	240261	10.7083		Q	0	1
977	0	3	Khalil, Mr. Betros		1	0	2660	14.4542		C	0	1
978	1	3	Barry, Miss. Julia	27	0	0	330844	7.8792		Q	1	0
979	1	3	Badman, Miss. Emily Louisa	18	0	0	A/4 31416	8.05		S	1	0
980	1	3	O'Donoghue, Ms. Bridget		0	0	364856	7.75		Q	1	0
981	0	2	Wells, Master. Ralph Lester	2	1	1	29103	23		S	0	1
982	1	3	Dyker, Mrs. Adolf Fredrik (Anna Elisabeth Judith Andersson)	22	1	0	347072	13.9		S	1	0
983	0	3	Pedersen, Mr. Olaf		0	0	345498	7.775		S	0	1
984	1	1	Davidson, Mrs. Thornton (Orian Hays)	27	1	2	F.C. 12750	52	B71	S	1	0
985	0	3	Guest, Mr. Robert		0	0	376563	8.05		S	0	1
986	0	1	Birnbaum, Mr. Jakob	25	0	0	13905	26		C	0	1
987	0	3	Tenglin, Mr. Gunnar Isidor	25	0	0	350033	7.7958		S	0	1
988	1	1	Cavendish, Mrs. Tyrell William (Julia Florence Siegel)	76	1	0	19877	78.85	C46	S	1	0
989	0	3	Makinen, Mr. Kalle Edvard	29	0	0	STON/O 2. 3101268	7.925		S	0	1
990	1	3	Braf, Miss. Elin Ester Maria	20	0	0	347471	7.8542		S	1	0
991	0	3	Nancarrow, Mr. William Henry	33	0	0	A./5. 3338	8.05		S	0	1
992	1	1	Stengel, Mrs. Charles Emil Henry (Annie May Morris)	43	1	0	11778	55.4417	C116	C	1	0
993	0	2	Weisz, Mr. Leopold	27	1	0	228414	26		S	0	1

994	0	3	Foley, Mr. William		0	0	365235	7.75		Q	0	1
995	0	3	Johansson Palmquist, Mr. Oskar Leander	26	0	0	347070	7.775		S	0	1
996	1	3	Thomas, Mrs. Alexander (Thamine Thelma)"	16	1	1	2625	8.5167		C	1	0
997	0	3	Holthen, Mr. Johan Martin	28	0	0	C 4001	22.525		S	0	1
998	0	3	Buckley, Mr. Daniel	21	0	0	330920	7.8208		Q	0	1
999	0	3	Ryan, Mr. Edward		0	0	383162	7.75		Q	0	1
1000	0	3	Willer, Mr. Aaron (Abi Weller)"		0	0	3410	8.7125		S	0	1
1001	0	2	Swane, Mr. George	18.5	0	0	248734	13	F	S	0	1
1002	0	2	Stanton, Mr. Samuel Ward	41	0	0	237734	15.0458		C	0	1
1003	1	3	Shine, Miss. Ellen Natalia		0	0	330968	7.7792		Q	1	0
1004	1	1	Evans, Miss. Edith Corse	36	0	0	PC 17531	31.6792	A29	C	1	0
1005	1	3	Buckley, Miss. Katherine	18.5	0	0	329944	7.2833		Q	1	0
1006	1	1	Straus, Mrs. Isidor (Rosalie Ida Blun)	63	1	0	PC 17483	221.7792	C55 C57	S	1	0
1007	0	3	Chronopoulos, Mr. Demetrios	18	1	0	2680	14.4542		C	0	1
1008	0	3	Thomas, Mr. John		0	0	2681	6.4375		C	0	1
1009	1	3	Sandstrom, Miss. Beatrice Irene	1	1	1	PP 9549	16.7	G6	S	1	0
1010	0	1	Beattie, Mr. Thomson	36	0	0	13050	75.2417	C6	C	0	1
1011	1	2	Chapman, Mrs. John Henry (Sara Elizabeth Lawry)	29	1	0	SC/AH 29037	26		S	1	0
1012	1	2	Watt, Miss. Bertha J	12	0	0	C.A. 33595	15.75		S	1	0
1013	0	3	Kiernan, Mr. John		1	0	367227	7.75		Q	0	1
1014	1	1	Schabert, Mrs. Paul (Emma Mock)	35	1	0	13236	57.75	C28	C	1	0
1015	0	3	Carver, Mr. Alfred John	28	0	0	392095	7.25		S	0	1
1016	0	3	Kennedy, Mr. John		0	0	368783	7.75		Q	0	1
1017	1	3	Cribb, Miss. Laura Alice	17	0	1	371362	16.1		S	1	0
1018	0	3	Brobeck, Mr. Karl Rudolf	22	0	0	350045	7.7958		S	0	1
1019	1	3	McCoy, Miss. Alicia		2	0	367226	23.25		Q	1	0
1020	0	2	Bowenur, Mr. Solomon	42	0	0	211535	13		S	0	1
1021	0	3	Petersen, Mr. Marius	24	0	0	342441	8.05		S	0	1
1022	0	3	Spinner, Mr. Henry John	32	0	0	STON/OQ. 369943	8.05		S	0	1
1023	0	1	Gracie, Col. Archibald IV	53	0	0	113780	28.5	C51	C	0	1
1024	1	3	Lefebre, Mrs. Frank (Frances)		0	4	4133	25.4667		S	1	0
1025	0	3	Thomas, Mr. Charles P		1	0	2621	6.4375		C	0	1
1026	0	3	Dintcheff, Mr. Valtcho	43	0	0	349226	7.8958		S	0	1
1027	0	3	Carlsson, Mr. Carl Robert	24	0	0	350409	7.8542		S	0	1
1028	0	3	Zakarian, Mr. Mapriededer	26.5	0	0	2656	7.225		C	0	1
1029	0	2	Schmidt, Mr. August	26	0	0	248659	13		S	0	1
1030	1	3	Drapkin, Miss. Jennie	23	0	0	SOTON/OQ 392083	8.05		S	1	0
1031	0	3	Goodwin, Mr. Charles Frederick	40	1	6	CA 2144	46.9		S	0	1
1032	1	3	Goodwin, Miss. Jessie Allis	10	5	2	CA 2144	46.9		S	1	0
1033	1	1	Daniels, Miss. Sarah	33	0	0	113781	151.55		S	1	0
										B57 B59 B63		
1034	0	1	Ryerson, Mr. Arthur Larned	61	1	3	PC 17608	262.375	B66	C	0	1
1035	0	2	Beauchamp, Mr. Henry James	28	0	0	244358	26		S	0	1
1036	0	1	Lindeberg-Lind, Mr. Erik Gustaf (Mr Edward Lingrey)"	42	0	0	17475	26.55		S	0	1
1037	0	3	Vander Planke, Mr. Julius	31	3	0	345763	18		S	0	1
1038	0	1	Hilliard, Mr. Herbert Henry		0	0	17463	51.8625	E46	S	0	1
1039	0	3	Davies, Mr. Evan	22	0	0	SC/A4 23568	8.05		S	0	1
1040	0	1	Crafton, Mr. John Bertram		0	0	113791	26.55		S	0	1
1041	0	2	Lahtinen, Rev. William	30	1	1	250651	26		S	0	1
1042	1	1	Earnshaw, Mrs. Boulton (Olive Potter)	23	0	1	11767	83.1583	C54	C	1	0
1043	0	3	Matinoff, Mr. Nicola		0	0	349255	7.8958		C	0	1
1044	0	3	Storey, Mr. Thomas	60.5	0	0	3701			S	0	1
1045	1	3	Klasen, Mrs. (Hulda Kristina Eugenia Lofqvist)	36	0	2	350405	12.1833		S	1	0

1046	0	3	Asplund, Master. Filip Oscar	13	4	2	347077	31.3875		S	0	1
1047	0	3	Duquemin, Mr. Joseph	24	0	0	S.O./P.P. 752	7.55		S	0	1
1048	1	1	Bird, Miss. Ellen	29	0	0	PC 17483	221.7792	C97	S	1	0
1049	1	3	Lundin, Miss. Olga Elida	23	0	0	347469	7.8542		S	1	0
1050	0	1	Borebank, Mr. John James	42	0	0	110489	26.55	D22	S	0	1
							SOTON/O.Q.					
1051	1	3	Peacock, Mrs. Benjamin (Edith Nile)	26	0	2	3101315	13.775		S	1	0
1052	1	3	Smyth, Miss. Julia		0	0	335432	7.7333		Q	1	0
1053	0	3	Touma, Master. Georges Youssef	7	1	1	2650	15.2458		C	0	1
1054	1	2	Wright, Miss. Marion	26	0	0	220844	13.5		S	1	0
1055	0	3	Pearce, Mr. Ernest		0	0	343271	7		S	0	1
1056	0	2	Peruschitz, Rev. Joseph Maria	41	0	0	237393	13		S	0	1
1057	1	3	Kink-Heilmann, Mrs. Anton (Luise Heilmann)	26	1	1	315153	22.025		S	1	0
1058	0	1	Brandeis, Mr. Emil	48	0	0	PC 17591	50.4958	B10	C	0	1
1059	0	3	Ford, Mr. Edward Watson	18	2	2	W./C. 6608	34.375		S	0	1
1060	1	1	Cassebeer, Mrs. Henry Arthur Jr (Eleanor Genevieve Fosdick)		0	0	17770	27.7208		C	1	0
1061	1	3	Hellstrom, Miss. Hilda Maria	22	0	0	7548	8.9625		S	1	0
1062	0	3	Lithman, Mr. Simon		0	0	S.O./P.P. 251	7.55		S	0	1
1063	0	3	Zakarian, Mr. Ortin	27	0	0	2670	7.225		C	0	1
1064	0	3	Dyker, Mr. Adolf Fredrik	23	1	0	347072	13.9		S	0	1
1065	0	3	Torfa, Mr. Assad		0	0	2673	7.2292		C	0	1
1066	0	3	Asplund, Mr. Carl Oscar Vilhelm Gustafsson	40	1	5	347077	31.3875		S	0	1
1067	1	2	Brown, Miss. Edith Eileen	15	0	2	29750	39		S	1	0
1068	1	2	Sincock, Miss. Maude	20	0	0	C.A. 33112	36.75		S	1	0
1069	0	1	Stengel, Mr. Charles Emil Henry	54	1	0	11778	55.4417	C116	C	0	1
1070	1	2	Becker, Mrs. Allen Oliver (Nellie E Baumgardner)	36	0	3	230136	39	F4	S	1	0
1071	1	1	Compton, Mrs. Alexander Taylor (Mary Eliza Ingersoll)	64	0	2	PC 17756	83.1583	E45	C	1	0
1072	0	2	McCrie, Mr. James Matthew	30	0	0	233478	13		S	0	1
1073	0	1	Compton, Mr. Alexander Taylor Jr	37	1	1	PC 17756	83.1583	E52	C	0	1
			Marvin, Mrs. Daniel Warner (Mary Graham Carmichael									
1074	1	1	Farquarson)	18	1	0	113773	53.1	D30	S	1	0
1075	0	3	Lane, Mr. Patrick		0	0	7935	7.75		Q	0	1
1076	1	1	Douglas, Mrs. Frederick Charles (Mary Helene Baxter)	27	1	1	PC 17558	247.5208	B58 B60	C	1	0
1077	0	2	Maybery, Mr. Frank Hubert	40	0	0	239059	16		S	0	1
1078	1	2	Phillips, Miss. Alice Frances Louisa	21	0	1	S.O./P.P. 2	21		S	1	0
1079	0	3	Davies, Mr. Joseph	17	2	0	A/4 48873	8.05		S	0	1
1080	1	3	Sage, Miss. Ada		8	2	CA. 2343	69.55		S	1	0
1081	0	2	Veal, Mr. James	40	0	0	28221	13		S	0	1
1082	0	2	Angle, Mr. William A	34	1	0	226875	26		S	0	1
1083	0	1	Salomon, Mr. Abraham L		0	0	111163	26		S	0	1
1084	0	3	van Billiard, Master. Walter John	11.5	1	1	A/5. 851	14.5		S	0	1
1085	0	2	Lingane, Mr. John	61	0	0	235509	12.35		Q	0	1
1086	0	2	Drew, Master. Marshall Brines	8	0	2	28220	32.5		S	0	1
1087	0	3	Karlsson, Mr. Julius Konrad Eugen	33	0	0	347465	7.8542		S	0	1
1088	0	1	Spedden, Master. Robert Douglas	6	0	2	16966	134.5	E34	C	0	1
1089	1	3	Nilsson, Miss. Berta Olivia	18	0	0	347066	7.775		S	1	0
1090	0	2	Baimbrigge, Mr. Charles Robert	23	0	0	C.A. 31030	10.5		S	0	1
1091	1	3	Rasmussen, Mrs. (Lena Jacobsen Solvang)		0	0	65305	8.1125		S	1	0
1092	1	3	Murphy, Miss. Nora		0	0	36568	15.5		Q	1	0
1093	0	3	Danbom, Master. Gilbert Sigvard Emanuel	0.33	0	2	347080	14.4		S	0	1
1094	0	1	Astor, Col. John Jacob	47	1	0	PC 17757	227.525	C62 C64	C	0	1
1095	1	2	Quick, Miss. Winifred Vera	8	1	1	26360	26		S	1	0
1096	0	2	Andrew, Mr. Frank Thomas	25	0	0	C.A. 34050	10.5		S	0	1

1097	0	1	Omont, Mr. Alfred Fernand		0	0	F.C. 12998	25.7417		C	0	1
1098	1	3	McGowan, Miss. Katherine	35	0	0	9232	7.75		Q	1	0
1099	0	2	Collett, Mr. Sidney C Stuart	24	0	0	28034	10.5		S	0	1
1100	1	1	Rosenbaum, Miss. Edith Louise	33	0	0	PC 17613	27.7208	A11	C	1	0
1101	0	3	Delalic, Mr. Redjo	25	0	0	349250	7.8958		S	0	1
1102	0	3	Andersen, Mr. Albert Karvin	32	0	0	C 4001	22.525		S	0	1
							SOTON/O.Q.					
1103	0	3	Finoli, Mr. Luigi		0	0	3101308	7.05		S	0	1
1104	0	2	Deacon, Mr. Percy William	17	0	0	S.O.C. 14879	73.5		S	0	1
1105	1	2	Howard, Mrs. Benjamin (Ellen Truelove Arman)	60	1	0	24065	26		S	1	0
1106	1	3	Andersson, Miss. Ida Augusta Margareta	38	4	2	347091	7.775		S	1	0
1107	0	1	Head, Mr. Christopher	42	0	0	113038	42.5	B11	S	0	1
1108	1	3	Mahon, Miss. Bridget Delia		0	0	330924	7.8792		Q	1	0
1109	0	1	Wick, Mr. George Dennick	57	1	1	36928	164.8667		S	0	1
1110	1	1	Widener, Mrs. George Dunton (Eleanor Elkins)	50	1	1	113503	211.5	C80	C	1	0
1111	0	3	Thomson, Mr. Alexander Morrison		0	0	32302	8.05		S	0	1
1112	1	2	Duran y More, Miss. Florentina	30	1	0	SC/PARIS 2148	13.8583		C	1	0
1113	0	3	Reynolds, Mr. Harold J	21	0	0	342684	8.05		S	0	1
1114	1	2	Cook, Mrs. (Selena Rogers)	22	0	0	W./C. 14266	10.5	F33	S	1	0
1115	0	3	Karlsson, Mr. Einar Gervasius	21	0	0	350053	7.7958		S	0	1
1116	1	1	Candee, Mrs. Edward (Helen Churchill Hungerford)	53	0	0	PC 17606	27.4458		C	1	0
1117	1	3	Moubarek, Mrs. George (Omine Amenia" Alexander)"		0	2	2661	15.2458		C	1	0
1118	0	3	Asplund, Mr. Johan Charles	23	0	0	350054	7.7958		S	0	1
1119	1	3	McNeill, Miss. Bridget		0	0	370368	7.75		Q	1	0
1120	0	3	Everett, Mr. Thomas James	40.5	0	0	C.A. 6212	15.1		S	0	1
1121	0	2	Hocking, Mr. Samuel James Metcalfe	36	0	0	242963	13		S	0	1
1122	0	2	Sweet, Mr. George Frederick	14	0	0	220845	65		S	0	1
1123	1	1	Willard, Miss. Constance	21	0	0	113795	26.55		S	1	0
1124	0	3	Wiklund, Mr. Karl Johan	21	1	0	3101266	6.4958		S	0	1
1125	0	3	Linehan, Mr. Michael		0	0	330971	7.8792		Q	0	1
1126	0	1	Cumings, Mr. John Bradley	39	1	0	PC 17599	71.2833	C85	C	0	1
1127	0	3	Vendel, Mr. Olof Edvin	20	0	0	350416	7.8542		S	0	1
1128	0	1	Warren, Mr. Frank Manley	64	1	0	110813	75.25	D37	C	0	1
1129	0	3	Baccos, Mr. Raffull	20	0	0	2679	7.225		C	0	1
1130	1	2	Hiltunen, Miss. Marta	18	1	1	250650	13		S	1	0
1131	1	1	Douglas, Mrs. Walter Donald (Mahala Dutton)	48	1	0	PC 17761	106.425	C86	C	1	0
1132	1	1	Lindstrom, Mrs. Carl Johan (Sigrid Posse)	55	0	0	112377	27.7208		C	1	0
1133	1	2	Christy, Mrs. (Alice Frances)	45	0	2	237789	30		S	1	0
1134	0	1	Spedden, Mr. Frederic Oakley	45	1	1	16966	134.5	E34	C	0	1
1135	0	3	Hyman, Mr. Abraham		0	0	3470	7.8875		S	0	1
1136	0	3	Johnston, Master. William Arthur Willie""		1	2	W./C. 6607	23.45		S	0	1
1137	0	1	Kenyon, Mr. Frederick R	41	1	0	17464	51.8625	D21	S	0	1
1138	1	2	Karnes, Mrs. J Frank (Claire Bennett)	22	0	0	F.C.C. 13534	21		S	1	0
1139	0	2	Drew, Mr. James Vivian	42	1	1	28220	32.5		S	0	1
1140	1	2	Hold, Mrs. Stephen (Annie Margaret Hill)	29	1	0	26707	26		S	1	0
1141	1	3	Khalil, Mrs. Betros (Zahie Maria" Elias)"		1	0	2660	14.4542		C	1	0
1142	1	2	West, Miss. Barbara J	0.92	1	2	C.A. 34651	27.75		S	1	0
							SOTON/O2					
1143	0	3	Abrahamsson, Mr. Abraham August Johannes	20	0	0	3101284	7.925		S	0	1
1144	0	1	Clark, Mr. Walter Miller	27	1	0	13508	136.7792	C89	C	0	1
1145	0	3	Salander, Mr. Karl Johan	24	0	0	7266	9.325		S	0	1
1146	0	3	Wenzel, Mr. Linhart	32.5	0	0	345775	9.5		S	0	1
1147	0	3	MacKay, Mr. George William		0	0	C.A. 42795	7.55		S	0	1

1148	0	3	Mahon, Mr. John		0	0	AQ/4 3130	7.75		Q	0	1
1149	0	3	Niklasson, Mr. Samuel	28	0	0	363611	8.05		S	0	1
1150	1	2	Bentham, Miss. Lilian W	19	0	0	28404	13		S	1	0
1151	0	3	Midtsjo, Mr. Karl Albert	21	0	0	345501	7.775		S	0	1
1152	0	3	de Messemaeker, Mr. Guillaume Joseph	36.5	1	0	345572	17.4		S	0	1
1153	0	3	Nilsson, Mr. August Ferdinand	21	0	0	350410	7.8542		S	0	1
1154	1	2	Wells, Mrs. Arthur Henry (Addie" Dart Trevaskis)"	29	0	2	29103	23		S	1	0
1155	1	3	Klasen, Miss. Gertrud Emilia	1	1	1	350405	12.1833		S	1	0
1156	0	2	Portaluppi, Mr. Emilio Ilario Giuseppe	30	0	0	C.A. 34644	12.7375		C	0	1
1157	0	3	Lyntakoff, Mr. Stanko		0	0	349235	7.8958		S	0	1
1158	0	1	Chisholm, Mr. Roderick Robert Crispin		0	0	112051	0		S	0	1
1159	0	3	Warren, Mr. Charles William		0	0	C.A. 49867	7.55		S	0	1
1160	1	3	Howard, Miss. May Elizabeth		0	0	A. 2. 39186	8.05		S	1	0
1161	0	3	Pokrnic, Mr. Mate	17	0	0	315095	8.6625		S	0	1
1162	0	1	McCaffry, Mr. Thomas Francis	46	0	0	13050	75.2417	C6	C	0	1
1163	0	3	Fox, Mr. Patrick		0	0	368573	7.75		Q	0	1
1164	1	1	Clark, Mrs. Walter Miller (Virginia McDowell)	26	1	0	13508	136.7792	C89	C	1	0
1165	1	3	Lennon, Miss. Mary		1	0	370371	15.5		Q	1	0
1166	0	3	Saade, Mr. Jean Nassr		0	0	2676	7.225		C	0	1
1167	1	2	Bryhl, Miss. Dagmar Jenny Ingeborg	20	1	0	236853	26		S	1	0
1168	0	2	Parker, Mr. Clifford Richard	28	0	0	SC 14888	10.5		S	0	1
1169	0	2	Faunthorpe, Mr. Harry	40	1	0	2926	26		S	0	1
1170	0	2	Ware, Mr. John James	30	1	0	CA 31352	21		S	0	1
1171	0	2	Oxenham, Mr. Percy Thomas	22	0	0	W./C. 14260	10.5		S	0	1
1172	1	3	Oreskovic, Miss. Jelka	23	0	0	315085	8.6625		S	1	0
							SOTON/O.Q.					
1173	0	3	Peacock, Master. Alfred Edward	0.75	1	1	3101315	13.775		S	0	1
1174	1	3	Fleming, Miss. Honora		0	0	364859	7.75		Q	1	0
1175	1	3	Touma, Miss. Maria Youssef	9	1	1	2650	15.2458		C	1	0
1176	1	3	Rosblom, Miss. Salli Helena	2	1	1	370129	20.2125		S	1	0
1177	0	3	Dennis, Mr. William	36	0	0	A/5 21175	7.25		S	0	1
							SOTON/O.Q.					
1178	0	3	Franklin, Mr. Charles (Charles Fardon)		0	0	3101314	7.25		S	0	1
1179	0	1	Snyder, Mr. John Pillsbury	24	1	0	21228	82.2667	B45	S	0	1
1180	0	3	Mardirosian, Mr. Sarkis		0	0	2655	7.2292	F E46	C	0	1
1181	0	3	Ford, Mr. Arthur		0	0	A/5 1478	8.05		S	0	1
1182	0	1	Rheims, Mr. George Alexander Lucien		0	0	PC 17607	39.6		S	0	1
1183	1	3	Daly, Miss. Margaret Marcella Maggie""	30	0	0	382650	6.95		Q	1	0
1184	0	3	Nasr, Mr. Mustafa		0	0	2652	7.2292		C	0	1
1185	0	1	Dodge, Dr. Washington	53	1	1	33638	81.8583	A34	S	0	1
1186	0	3	Wittevrongel, Mr. Camille	36	0	0	345771	9.5		S	0	1
1187	0	3	Angheloff, Mr. Minko	26	0	0	349202	7.8958		S	0	1
1188	1	2	Laroche, Miss. Louise	1	1	2	SC/Paris 2123	41.5792		C	1	0
1189	0	3	Samaan, Mr. Hanna		2	0	2662	21.6792		C	0	1
1190	0	1	Loring, Mr. Joseph Holland	30	0	0	113801	45.5		S	0	1
1191	0	3	Johansson, Mr. Nils	29	0	0	347467	7.8542		S	0	1
1192	0	3	Olsson, Mr. Oscar Wilhelm	32	0	0	347079	7.775		S	0	1
1193	0	2	Malachard, Mr. Noel		0	0	237735	15.0458	D	C	0	1
1194	0	2	Phillips, Mr. Escott Robert	43	0	1	S.O./P.P. 2	21		S	0	1
1195	0	3	Pokrnic, Mr. Tome	24	0	0	315092	8.6625		S	0	1
1196	1	3	McCarthy, Miss. Catherine Katie""		0	0	383123	7.75		Q	1	0
1197	1	1	Crosby, Mrs. Edward Gifford (Catherine Elizabeth Halstead)	64	1	1	112901	26.55	B26	S	1	0
1198	0	1	Allison, Mr. Hudson Joshua Creighton	30	1	2	113781	151.55	C22 C26	S	0	1

1199	0	3	Aks, Master. Philip Frank	0.83	0	1	392091	9.35		S	0	1
1200	0	1	Hays, Mr. Charles Melville	55	1	1	12749	93.5	B69	S	0	1
1201	1	3	Hansen, Mrs. Claus Peter (Jennie L Howard)	45	1	0	350026	14.1083		S	1	0
1202	0	3	Cacic, Mr. Jego Grga	18	0	0	315091	8.6625		S	0	1
1203	0	3	Vartanian, Mr. David	22	0	0	2658	7.225		C	0	1
1204	0	3	Sadowitz, Mr. Harry		0	0	LP 1588	7.575		S	0	1
1205	1	3	Carr, Miss. Jeannie	37	0	0	368364	7.75		Q	1	0
1206	1	1	White, Mrs. John Stuart (Ella Holmes)	55	0	0	PC 17760	135.6333	C32	C	1	0
1207	1	3	Hagardon, Miss. Kate	17	0	0	AQ/3. 30631	7.7333		Q	1	0
1208	0	1	Spencer, Mr. William Augustus	57	1	0	PC 17569	146.5208	B78	C	0	1
1209	0	2	Rogers, Mr. Reginald Harry	19	0	0	28004	10.5		S	0	1
1210	0	3	Jonsson, Mr. Nils Hilding	27	0	0	350408	7.8542		S	0	1
1211	0	2	Jefferys, Mr. Ernest Wilfred	22	2	0	C.A. 31029	31.5		S	0	1
1212	0	3	Andersson, Mr. Johan Samuel	26	0	0	347075	7.775		S	0	1
1213	0	3	Krekorian, Mr. Neshan	25	0	0	2654	7.2292	F E57	C	0	1
1214	0	2	Nesson, Mr. Israel	26	0	0	244368	13	F2	S	0	1
1215	0	1	Rowe, Mr. Alfred G	33	0	0	113790	26.55		S	0	1
1216	1	1	Kreuchen, Miss. Emilie	39	0	0	24160	211.3375		S	1	0
							SOTON/O.Q.					
1217	0	3	Assam, Mr. Ali	23	0	0	3101309	7.05		S	0	1
1218	1	2	Becker, Miss. Ruth Elizabeth	12	2	1	230136	39	F4	S	1	0
1219	0	1	Rosenshine, Mr. George (Mr George Thorne)"	46	0	0	PC 17585	79.2		C	0	1
1220	0	2	Clarke, Mr. Charles Valentine	29	1	0	2003	26		S	0	1
1221	0	2	Enander, Mr. Ingvar	21	0	0	236854	13		S	0	1
1222	1	2	Davies, Mrs. John Morgan (Elizabeth Agnes Mary White)	48	0	2	C.A. 33112	36.75		S	1	0
1223	0	1	Dulles, Mr. William Crothers	39	0	0	PC 17580	29.7	A18	C	0	1
1224	0	3	Thomas, Mr. Tannous		0	0	2684	7.225		C	0	1
1225	1	3	Nakid, Mrs. Said (Waika Mary" Mowad)"	19	1	1	2653	15.7417		C	1	0
1226	0	3	Cor, Mr. Ivan	27	0	0	349229	7.8958		S	0	1
1227	0	1	Maguire, Mr. John Edward	30	0	0	110469	26	C106	S	0	1
1228	0	2	de Brito, Mr. Jose Joaquim	32	0	0	244360	13		S	0	1
1229	0	3	Elias, Mr. Joseph	39	0	2	2675	7.2292		C	0	1
1230	0	2	Denbury, Mr. Herbert	25	0	0	C.A. 31029	31.5		S	0	1
1231	0	3	Betros, Master. Seman		0	0	2622	7.2292		C	0	1
1232	0	2	Fillbrook, Mr. Joseph Charles	18	0	0	C.A. 15185	10.5		S	0	1
1233	0	3	Lundstrom, Mr. Thure Edvin	32	0	0	350403	7.5792		S	0	1
1234	0	3	Sage, Mr. John George		1	9	CA. 2343	69.55		S	0	1
			Cardeza, Mrs. James Warburton Martinez (Charlotte Wardle									
1235	1	1	Drake)	58	0	1	PC 17755	512.3292	B51 B53 B55	C	1	0
1236	0	3	van Billiard, Master. James William		1	1	A/5. 851	14.5		S	0	1
1237	1	3	Abelseth, Miss. Karen Marie	16	0	0	348125	7.65		S	1	0
1238	0	2	Botsford, Mr. William Hull	26	0	0	237670	13		S	0	1
1239	1	3	Whabee, Mrs. George Joseph (Shawneene Abi-Saab)	38	0	0	2688	7.2292		C	1	0
1240	0	2	Giles, Mr. Ralph	24	0	0	248726	13.5		S	0	1
1241	1	2	Walcroft, Miss. Nellie	31	0	0	F.C.C. 13528	21		S	1	0
1242	1	1	Greenfield, Mrs. Leo David (Blanche Strouse)	45	0	1	PC 17759	63.3583	D10 D12	C	1	0
1243	0	2	Stokes, Mr. Philip Joseph	25	0	0	F.C.C. 13540	10.5		S	0	1
1244	0	2	Dibden, Mr. William	18	0	0	S.O.C. 14879	73.5		S	0	1
1245	0	2	Herman, Mr. Samuel	49	1	2	220845	65		S	0	1
1246	1	3	Dean, Miss. Elizabeth Gladys Millvina""	0.17	1	2	C.A. 2315	20.575		S	1	0
1247	0	1	Julian, Mr. Henry Forbes	50	0	0	113044	26	E60	S	0	1
1248	1	1	Brown, Mrs. John Murray (Caroline Lane Lamson)	59	2	0	11769	51.4792	C101	S	1	0
1249	0	3	Lockyer, Mr. Edward		0	0	1222	7.8792		S	0	1

1250	0	3	O'Keefe, Mr. Patrick		0	0	368402	7.75		Q	0	1
1251	1	3	Lindell, Mrs. Edvard Bengtsson (Elin Gerda Persson)	30	1	0	349910	15.55		S	1	0
1252	0	3	Sage, Master. William Henry	14.5	8	2	CA. 2343	69.55		S	0	1
1253	1	2	Mallet, Mrs. Albert (Antoinette Magnin)	24	1	1	S.C./PARIS 2079	37.0042		C	1	0
1254	1	2	Ware, Mrs. John James (Florence Louise Long)	31	0	0	CA 31352	21		S	1	0
1255	0	3	Strilic, Mr. Ivan	27	0	0	315083	8.6625		S	0	1
1256	1	1	Harder, Mrs. George Achilles (Dorothy Annan)	25	1	0	11765	55.4417	E50	C	1	0
1257	1	3	Sage, Mrs. John (Annie Bullen)		1	9	CA. 2343	69.55		S	1	0
1258	0	3	Caram, Mr. Joseph		1	0	2689	14.4583		C	0	1
1259	1	3	Riihivouri, Miss. Susanna Juhantytar Sanni""	22	0	0	3101295	39.6875		S	1	0
1260	1	1	Gibson, Mrs. Leonard (Pauline C Boeson)	45	0	1	112378	59.4		C	1	0
1261	0	2	Pallas y Castello, Mr. Emilio	29	0	0	SC/PARIS 2147	13.8583		C	0	1
1262	0	2	Giles, Mr. Edgar	21	1	0	28133	11.5		S	0	1
1263	1	1	Wilson, Miss. Helen Alice	31	0	0	16966	134.5	E39 E41	C	1	0
1264	0	1	Ismay, Mr. Joseph Bruce	49	0	0	112058	0	B52 B54 B56	S	0	1
1265	0	2	Harbeck, Mr. William H	44	0	0	248746	13		S	0	1
1266	1	1	Dodge, Mrs. Washington (Ruth Vidaver)	54	1	1	33638	81.8583	A34	S	1	0
1267	1	1	Bowen, Miss. Grace Scott	45	0	0	PC 17608	262.375		C	1	0
1268	1	3	Kink, Miss. Maria	22	2	0	315152	8.6625		S	1	0
1269	0	2	Cotterill, Mr. Henry Harry""	21	0	0	29107	11.5		S	0	1
1270	0	1	Hipkins, Mr. William Edward	55	0	0	680	50	C39	S	0	1
1271	0	3	Asplund, Master. Carl Edgar	5	4	2	347077	31.3875		S	0	1
1272	0	3	O'Connor, Mr. Patrick		0	0	366713	7.75		Q	0	1
1273	0	3	Foley, Mr. Joseph	26	0	0	330910	7.8792		Q	0	1
1274	1	3	Risien, Mrs. Samuel (Emma)		0	0	364498	14.5		S	1	0
1275	1	3	McNamee, Mrs. Neal (Eileen O'Leary)	19	1	0	376566	16.1		S	1	0
1276	0	2	Wheeler, Mr. Edwin Frederick""		0	0	SC/PARIS 2159	12.875		S	0	1
1277	1	2	Herman, Miss. Kate	24	1	2	220845	65		S	1	0
1278	0	3	Aronsson, Mr. Ernst Axel Algot	24	0	0	349911	7.775		S	0	1
1279	0	2	Ashby, Mr. John	57	0	0	244346	13		S	0	1
1280	0	3	Canavan, Mr. Patrick	21	0	0	364858	7.75		Q	0	1
1281	0	3	Palsson, Master. Paul Folke	6	3	1	349909	21.075		S	0	1
1282	0	1	Payne, Mr. Vivian Ponsonby	23	0	0	12749	93.5	B24	S	0	1
1283	1	1	Lines, Mrs. Ernest H (Elizabeth Lindsey James)	51	0	1	PC 17592	39.4	D28	S	1	0
1284	0	3	Abbott, Master. Eugene Joseph	13	0	2	C.A. 2673	20.25		S	0	1
1285	0	2	Gilbert, Mr. William	47	0	0	C.A. 30769	10.5		S	0	1
1286	0	3	Kink-Heilmann, Mr. Anton	29	3	1	315153	22.025		S	0	1
1287	1	1	Smith, Mrs. Lucien Philip (Mary Eloise Hughes)	18	1	0	13695	60	C31	S	1	0
1288	0	3	Colbert, Mr. Patrick	24	0	0	371109	7.25		Q	0	1
1289	1	1	Frolicher-Stehli, Mrs. Maxmillian (Margaretha Emerentia Stehli)	48	1	1	13567	79.2	B41	C	1	0
1290	0	3	Larsson-Rondberg, Mr. Edvard A	22	0	0	347065	7.775		S	0	1
1291	0	3	Conlon, Mr. Thomas Henry	31	0	0	21332	7.7333		Q	0	1
1292	1	1	Bonnell, Miss. Caroline	30	0	0	36928	164.8667	C7	S	1	0
1293	0	2	Gale, Mr. Harry	38	1	0	28664	21		S	0	1
1294	1	1	Gibson, Miss. Dorothy Winifred	22	0	1	112378	59.4		C	1	0
1295	0	1	Carrau, Mr. Jose Pedro	17	0	0	113059	47.1		S	0	1
1296	0	1	Frauenthal, Mr. Isaac Gerald	43	1	0	17765	27.7208	D40	C	0	1
1297	0	2	Nourney, Mr. Alfred (Baron von Drachstedt")"	20	0	0	SC/PARIS 2166	13.8625	D38	C	0	1
1298	0	2	Ware, Mr. William Jeffery	23	1	0	28666	10.5		S	0	1
1299	0	1	Widener, Mr. George Dunton	50	1	1	113503	211.5	C80	C	0	1
1300	1	3	Riordan, Miss. Johanna Hannah""		0	0	334915	7.7208		Q	1	0
							SOTON/O.Q.					
1301	1	3	Peacock, Miss. Treasteall	3	1	1	3101315	13.775		S	1	0

1302	1	3	Naughton, Miss. Hannah		0	0	365237	7.75		Q	1	0
1303	1	1	Minahan, Mrs. William Edward (Lillian E Thorpe)	37	1	0	19928	90	C78	Q	1	0
1304	1	3	Henriksson, Miss. Jenny Lovisa	28	0	0	347086	7.775		S	1	0
1305	0	3	Spector, Mr. Woolf		0	0	A.5. 3236	8.05		S	0	1
1306	1	1	Oliva y Ocana, Dona. Fermina	39	0	0	PC 17758	108.9	C105	C	1	0
							SOTON/O.Q.					
1307	0	3	Saether, Mr. Simon Sivertsen	38.5	0	0	3101262	7.25		S	0	1
1308	0	3	Ware, Mr. Frederick		0	0	359309	8.05		S	0	1
1309	0	3	Peter, Master. Michael J		1	1	2668	22.3583		C	0	1

Для набора данных для одного (произвольного) числового признака проведите обнаружение и удаление выбросов на основе межквартильного размаха.

```
import pandas as pd
import matplotlib.pyplot as plt

# Загрузка датасета
data = pd.read_csv('titanic.csv')

# Заполнение пропущенных значений медианным возрастом:
median_age = data['Age'].median()
data['Age'].fillna(median_age, inplace=True)

# Выбор столбца Age
age = data["Age"]

from scipy.stats import iqr

# Вычисление межквартильного размаха
q1, q3 = age.quantile(0.25), age.quantile(0.75)
iqr_age = iqr(age)

# Определение границ выбросов
outlier_min = q1 - 1.5 * iqr_age
outlier_max = q3 + 1.5 * iqr_age

# Удаление выбросов
age_clean = age[(age >= outlier_min) & (age <=
outlier_max)]

print("Межквартильный размах: ", iqr_age)
print("Нижняя граница выбросов: ", outlier_min)
print("Верхняя граница выбросов: ", outlier_max)

# Построение гистограммы исходного признака
plt.hist(age, bins=20)
plt.title("Исходный признак Age")
plt.xlabel("Age")
plt.ylabel("Частота")
plt.show()

# Построение гистограммы очищенного от выбросов
признака
plt.hist(age_clean, bins=20)
plt.title("Очищенный от выбросов признак Age")
plt.xlabel("Age")
plt.ylabel("Частота")
plt.show()
```

В итоге имеем:

Межквартильный размах: 12.75
Нижняя граница выбросов: 3.875
Верхняя граница выбросов: 54.875



