

# Homework 3

PSTAT 131/231

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## Classification

For this assignment, we will be working with part of a Kaggle data set that was the subject of a machine learning competition and is often used for practicing ML models. The goal is classification; specifically, to predict which passengers would survive the Titanic shipwreck.

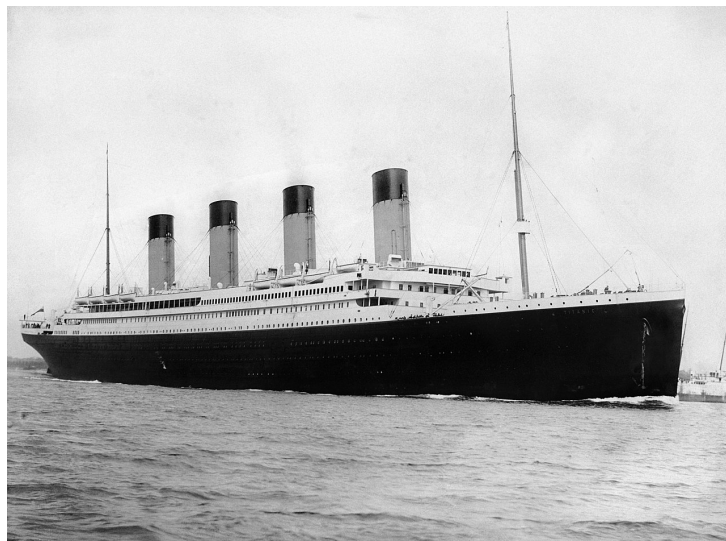


Figure 1: Fig. 1: RMS Titanic departing Southampton on April 10, 1912.

Load the data from `data/titanic.csv` into *R* and familiarize yourself with the variables it contains using the codebook (`data/titanic_codebook.txt`).

Notice that `survived` and `pclass` should be changed to factors. When changing `survived` to a factor, you may want to reorder the factor so that “Yes” is the first level.

Make sure you load the `tidyverse` and `tidymodels`!

*Remember that you’ll need to set a seed at the beginning of the document to reproduce your results.*

```
titanic <- read.csv(file = "~/Downloads/homework-3/data/titanic.csv")
head(titanic)
```

```
##   passenger_id survived pclass
## 1           1       No       3
## 2           2       Yes       1
## 3           3       Yes       3
## 4           4       Yes       1
## 5           5       No       3
## 6           6       No       3
##
##                                name      sex age sib_sp parch
## 1                                Braund, Mr. Owen Harris   male  22      1      0
## 2 Cumings, Mrs. John Bradley (Florence Briggs Thayer) female  38      1      0
## 3                                Heikkinen, Miss. Laina female  26      0      0
## 4 Futrelle, Mrs. Jacques Heath (Lily May Peel) female    35      1      0
## 5                                Allen, Mr. William Henry   male  35      0      0
## 6                                Moran, Mr. James         male  NA      0      0
##
##      ticket      fare cabin embarked
## 1    A/5 21171   7.2500  <NA>         S
## 2    PC 17599  71.2833   C85         C
## 3 STON/O2. 3101282  7.9250  <NA>         S
## 4    113803  53.1000  C123         S
## 5    373450   8.0500  <NA>         S
## 6    330877   8.4583  <NA>         Q
```

## Question 1

Split the data, stratifying on the outcome variable, `survived`. You should choose the proportions to split the data into. Verify that the training and testing data sets have the appropriate number of observations. Take a look at the training data and note any potential issues, such as missing data.

Why is it a good idea to use stratified sampling for this data?

1. For our training and testing data sets, we have missing data for 'age,' 'cabin,' and 'embarked.' The potential issues could be reduced statistical power, the cause of bias in the estimation of parameters, and reduced representativeness of the samples.

It is a good idea to use stratified sampling for this data because our sample can be divided into mutually exclusive and exhaustive subgroups that can have different mean values for the variable. Since our data satisfies this requirement, it is a good idea to use stratified sampling for this data.

```
titanic_split <- initial_split(titanic, prop = 0.70,
                               strata = survived)
titanic_train <- training(titanic_split)
titanic_test  <- testing(titanic_split)
titanic_train
```

```
##   passenger_id survived pclass
## 1           1       No       3
## 6           6       No       3
## 7           7       No       1
## 13          13       No       3
## 14          14       No       3
## 19          19       No       3
## 28          28       No       1
## 30          30       No       3
```

## 34	34	No	2
## 39	39	No	3
## 41	41	No	3
## 46	46	No	3
## 47	47	No	3
## 49	49	No	3
## 50	50	No	3
## 51	51	No	3
## 52	52	No	3
## 55	55	No	1
## 58	58	No	3
## 60	60	No	3
## 61	61	No	3
## 65	65	No	1
## 68	68	No	3
## 70	70	No	3
## 71	71	No	2
## 72	72	No	3
## 74	74	No	3
## 76	76	No	3
## 77	77	No	3
## 78	78	No	3
## 84	84	No	1
## 88	88	No	3
## 90	90	No	3
## 91	91	No	3
## 92	92	No	3
## 93	93	No	1
## 94	94	No	3
## 96	96	No	3
## 97	97	No	1
## 100	100	No	2
## 101	101	No	3
## 104	104	No	3
## 105	105	No	3
## 106	106	No	3
## 109	109	No	3
## 112	112	No	3
## 113	113	No	3
## 115	115	No	3
## 116	116	No	3
## 118	118	No	2
## 119	119	No	1
## 121	121	No	2
## 122	122	No	3
## 123	123	No	2
## 127	127	No	3
## 132	132	No	3
## 140	140	No	1
## 141	141	No	3
## 144	144	No	3
## 145	145	No	2
## 146	146	No	2
## 150	150	No	2

## 151	151	No	2
## 153	153	No	3
## 154	154	No	3
## 155	155	No	3
## 156	156	No	1
## 158	158	No	3
## 159	159	No	3
## 160	160	No	3
## 161	161	No	3
## 164	164	No	3
## 168	168	No	3
## 169	169	No	1
## 171	171	No	1
## 172	172	No	3
## 174	174	No	3
## 175	175	No	1
## 176	176	No	3
## 178	178	No	1
## 179	179	No	2
## 180	180	No	3
## 181	181	No	3
## 182	182	No	2
## 190	190	No	3
## 197	197	No	3
## 201	201	No	3
## 202	202	No	3
## 204	204	No	3
## 206	206	No	3
## 207	207	No	3
## 214	214	No	2
## 215	215	No	3
## 218	218	No	2
## 220	220	No	2
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## 223	223	No	3
## 226	226	No	3
## 228	228	No	3
## 229	229	No	2
## 230	230	No	3
## 232	232	No	3
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## 235	235	No	2
## 236	236	No	3
## 239	239	No	2
## 240	240	No	2
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## 244	244	No	3
## 245	245	No	3
## 246	246	No	1
## 247	247	No	3
## 250	250	No	2
## 251	251	No	3
## 253	253	No	1
## 255	255	No	3

## 261	261	No	3
## 264	264	No	1
## 265	265	No	3
## 266	266	No	2
## 267	267	No	3
## 271	271	No	1
## 274	274	No	1
## 277	277	No	3
## 279	279	No	3
## 281	281	No	3
## 282	282	No	3
## 283	283	No	3
## 286	286	No	3
## 288	288	No	3
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## 296	296	No	1
## 297	297	No	3
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## 305	305	No	3
## 309	309	No	2
## 313	313	No	2
## 314	314	No	3
## 315	315	No	2
## 318	318	No	2
## 321	321	No	3
## 325	325	No	3
## 327	327	No	3
## 332	332	No	1
## 333	333	No	1
## 334	334	No	3
## 336	336	No	3
## 337	337	No	1
## 340	340	No	1
## 344	344	No	2
## 351	351	No	3
## 352	352	No	1
## 353	353	No	3
## 354	354	No	3
## 356	356	No	3
## 358	358	No	2
## 362	362	No	2
## 364	364	No	3
## 366	366	No	3
## 372	372	No	3
## 373	373	No	3
## 374	374	No	1
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## 378	378	No	1
## 379	379	No	3
## 383	383	No	3
## 385	385	No	3
## 386	386	No	2
## 389	389	No	3
## 396	396	No	3

## 397	397	No	3
## 398	398	No	2
## 399	399	No	2
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## 403	403	No	3
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## 412	412	No	3
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## 424	424	No	3
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## 426	426	No	3
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## 437	437	No	3
## 439	439	No	1
## 440	440	No	2
## 443	443	No	3
## 451	451	No	2
## 453	453	No	1
## 457	457	No	1
## 460	460	No	3
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## 467	467	No	2
## 468	468	No	1
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## 476	476	No	1
## 477	477	No	2
## 478	478	No	3
## 479	479	No	3
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## 483	483	No	3
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## 502	502	No	3
## 503	503	No	3
## 504	504	No	3
## 509	509	No	3
## 515	515	No	3
## 522	522	No	3
## 523	523	No	3

## 525	525	No	3
## 526	526	No	3
## 529	529	No	3
## 530	530	No	2
## 535	535	No	3
## 537	537	No	1
## 539	539	No	3
## 543	543	No	3
## 545	545	No	1
## 549	549	No	3
## 553	553	No	3
## 562	562	No	3
## 563	563	No	2
## 564	564	No	3
## 565	565	No	3
## 566	566	No	3
## 569	569	No	3
## 576	576	No	3
## 579	579	No	3
## 585	585	No	3
## 587	587	No	2
## 589	589	No	3
## 594	594	No	3
## 595	595	No	2
## 596	596	No	3
## 599	599	No	3
## 602	602	No	3
## 604	604	No	3
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## 615	615	No	3
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## 618	618	No	3
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## 621	621	No	3
## 626	626	No	1
## 627	627	No	2
## 629	629	No	3
## 630	630	No	3
## 632	632	No	3
## 635	635	No	3
## 638	638	No	2
## 639	639	No	3
## 640	640	No	3
## 641	641	No	3
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## 653	653	No	3
## 655	655	No	3
## 656	656	No	2
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## 659	659	No	2
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## 667	667	No	2
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## 669	669	No	3
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## 673	673	No	2
## 676	676	No	3
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## 694	694	No	3
## 695	695	No	1
## 696	696	No	2
## 697	697	No	3
## 699	699	No	1
## 700	700	No	3
## 703	703	No	3
## 705	705	No	3
## 706	706	No	2
## 712	712	No	1
## 714	714	No	3
## 716	716	No	3
## 719	719	No	3
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## 723	723	No	2
## 726	726	No	3
## 729	729	No	2
## 730	730	No	3
## 732	732	No	3
## 733	733	No	2
## 737	737	No	3
## 739	739	No	3
## 740	740	No	3
## 744	744	No	3
## 746	746	No	1
## 747	747	No	3
## 749	749	No	1
## 750	750	No	3
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## 759	759	No	3
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## 762	762	No	3
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## 768	768	No	3
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## 770	770	No	3
## 771	771	No	3
## 776	776	No	3
## 777	777	No	3
## 779	779	No	3



## 783	783	No	1
## 784	784	No	3
## 788	788	No	3
## 790	790	No	1
## 791	791	No	3
## 792	792	No	2
## 793	793	No	3
## 794	794	No	1
## 795	795	No	3
## 796	796	No	2
## 799	799	No	3
## 800	800	No	3
## 801	801	No	2
## 807	807	No	1
## 808	808	No	3
## 809	809	No	2
## 812	812	No	3
## 814	814	No	3
## 816	816	No	1
## 817	817	No	3
## 818	818	No	2
## 819	819	No	3
## 820	820	No	3
## 823	823	No	1
## 825	825	No	3
## 826	826	No	3
## 834	834	No	3
## 837	837	No	3
## 841	841	No	3
## 844	844	No	3
## 845	845	No	3
## 847	847	No	3
## 848	848	No	3
## 849	849	No	2
## 851	851	No	3
## 852	852	No	3
## 853	853	No	3
## 855	855	No	2
## 860	860	No	3
## 861	861	No	3
## 862	862	No	2
## 864	864	No	3
## 865	865	No	2
## 868	868	No	1
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## 877	877	No	3
## 878	878	No	3
## 882	882	No	3
## 883	883	No	3
## 884	884	No	2
## 885	885	No	3
## 891	891	No	3
## 2	2	Yes	1
## 10	10	Yes	2

## 16	16	Yes	2
## 26	26	Yes	3
## 32	32	Yes	1
## 33	33	Yes	3
## 37	37	Yes	3
## 44	44	Yes	2
## 45	45	Yes	3
## 48	48	Yes	3
## 53	53	Yes	1
## 54	54	Yes	2
## 56	56	Yes	1
## 59	59	Yes	2
## 62	62	Yes	1
## 67	67	Yes	2
## 69	69	Yes	3
## 75	75	Yes	3
## 79	79	Yes	2
## 80	80	Yes	3
## 85	85	Yes	2
## 86	86	Yes	3
## 89	89	Yes	1
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## 128	128	Yes	3
## 129	129	Yes	3
## 134	134	Yes	2
## 137	137	Yes	1
## 142	142	Yes	3
## 143	143	Yes	3
## 152	152	Yes	1
## 162	162	Yes	2
## 167	167	Yes	1
## 184	184	Yes	2
## 185	185	Yes	3
## 187	187	Yes	3
## 188	188	Yes	1
## 193	193	Yes	3
## 194	194	Yes	2
## 195	195	Yes	1
## 196	196	Yes	1
## 199	199	Yes	3
## 205	205	Yes	3
## 208	208	Yes	3
## 209	209	Yes	3
## 210	210	Yes	1
## 212	212	Yes	2
## 217	217	Yes	3
## 219	219	Yes	1
## 227	227	Yes	2
## 234	234	Yes	3
## 242	242	Yes	3
## 249	249	Yes	1
## 256	256	Yes	3
## 257	257	Yes	1

## 258	258	Yes	1
## 259	259	Yes	1
## 260	260	Yes	2
## 268	268	Yes	3
## 269	269	Yes	1
## 270	270	Yes	1
## 272	272	Yes	3
## 273	273	Yes	2
## 275	275	Yes	3
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## 290	290	Yes	3
## 291	291	Yes	1
## 292	292	Yes	1
## 299	299	Yes	1
## 300	300	Yes	1
## 301	301	Yes	3
## 302	302	Yes	3
## 304	304	Yes	2
## 306	306	Yes	1
## 307	307	Yes	1
## 310	310	Yes	1
## 317	317	Yes	2
## 319	319	Yes	1
## 323	323	Yes	2
## 324	324	Yes	2
## 326	326	Yes	1
## 328	328	Yes	2
## 329	329	Yes	3
## 330	330	Yes	1
## 331	331	Yes	3
## 335	335	Yes	1
## 338	338	Yes	1
## 339	339	Yes	3
## 342	342	Yes	1
## 347	347	Yes	2
## 348	348	Yes	3
## 349	349	Yes	3
## 357	357	Yes	1
## 359	359	Yes	3
## 367	367	Yes	1
## 368	368	Yes	3
## 369	369	Yes	3
## 370	370	Yes	1
## 371	371	Yes	1
## 377	377	Yes	3
## 382	382	Yes	3
## 388	388	Yes	2
## 390	390	Yes	2
## 401	401	Yes	3
## 413	413	Yes	1
## 417	417	Yes	2
## 418	418	Yes	2
## 427	427	Yes	2

## 428	428	Yes	2
## 430	430	Yes	3
## 431	431	Yes	1
## 432	432	Yes	3
## 433	433	Yes	2
## 438	438	Yes	2
## 441	441	Yes	2
## 444	444	Yes	2
## 445	445	Yes	3
## 446	446	Yes	1
## 448	448	Yes	1
## 454	454	Yes	1
## 456	456	Yes	3
## 458	458	Yes	1
## 461	461	Yes	1
## 470	470	Yes	3
## 473	473	Yes	2
## 474	474	Yes	2
## 487	487	Yes	1
## 490	490	Yes	3
## 497	497	Yes	1
## 505	505	Yes	1
## 507	507	Yes	2
## 508	508	Yes	1
## 510	510	Yes	3
## 513	513	Yes	1
## 514	514	Yes	1
## 517	517	Yes	2
## 519	519	Yes	2
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## 524	524	Yes	1
## 527	527	Yes	2
## 531	531	Yes	2
## 534	534	Yes	3
## 536	536	Yes	2
## 538	538	Yes	1
## 540	540	Yes	1
## 541	541	Yes	1
## 544	544	Yes	2
## 547	547	Yes	2
## 551	551	Yes	1
## 554	554	Yes	3
## 555	555	Yes	3
## 557	557	Yes	1
## 559	559	Yes	1
## 560	560	Yes	3
## 570	570	Yes	3
## 572	572	Yes	1
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## 574	574	Yes	3
## 577	577	Yes	2
## 578	578	Yes	1
## 580	580	Yes	3
## 581	581	Yes	2

## 586	586	Yes	1
## 592	592	Yes	1
## 597	597	Yes	2
## 600	600	Yes	1
## 605	605	Yes	1
## 608	608	Yes	1
## 613	613	Yes	3
## 619	619	Yes	2
## 622	622	Yes	1
## 623	623	Yes	3
## 631	631	Yes	1
## 633	633	Yes	1
## 636	636	Yes	2
## 642	642	Yes	1
## 645	645	Yes	3
## 646	646	Yes	1
## 650	650	Yes	3
## 654	654	Yes	3
## 665	665	Yes	3
## 671	671	Yes	2
## 678	678	Yes	3
## 690	690	Yes	1
## 691	691	Yes	1
## 692	692	Yes	3
## 701	701	Yes	1
## 702	702	Yes	1
## 707	707	Yes	2
## 708	708	Yes	1
## 709	709	Yes	1
## 710	710	Yes	3
## 717	717	Yes	1
## 718	718	Yes	2
## 727	727	Yes	2
## 731	731	Yes	1
## 738	738	Yes	1
## 741	741	Yes	1
## 745	745	Yes	3
## 751	751	Yes	2
## 752	752	Yes	3
## 756	756	Yes	2
## 760	760	Yes	1
## 766	766	Yes	1
## 775	775	Yes	2
## 778	778	Yes	3
## 782	782	Yes	1
## 787	787	Yes	3
## 789	789	Yes	3
## 797	797	Yes	1
## 802	802	Yes	2
## 804	804	Yes	3
## 805	805	Yes	3
## 810	810	Yes	1
## 821	821	Yes	1
## 822	822	Yes	3

## 824	824	Yes	3
## 828	828	Yes	2
## 830	830	Yes	1
## 831	831	Yes	3
## 836	836	Yes	1
## 843	843	Yes	1
## 850	850	Yes	1
## 854	854	Yes	1
## 856	856	Yes	3
## 857	857	Yes	1
## 858	858	Yes	1
## 859	859	Yes	3
## 866	866	Yes	2
## 867	867	Yes	2
## 870	870	Yes	3
## 875	875	Yes	2
## 876	876	Yes	3
## 880	880	Yes	1
## 881	881	Yes	2
## 888	888	Yes	1
## 890	890	Yes	1

##		name	sex
## 1		Braund, Mr. Owen Harris	male
## 6		Moran, Mr. James	male
## 7		McCarthy, Mr. Timothy J	male
## 13		Saunderscock, Mr. William Henry	male
## 14		Andersson, Mr. Anders Johan	male
## 19	Vander Planke, Mrs. Julius (Emelia Maria Vandemoortele)		female
## 28		Fortune, Mr. Charles Alexander	male
## 30		Todoroff, Mr. Lalio	male
## 34		Wheadon, Mr. Edward H	male
## 39		Vander Planke, Miss. Augusta Maria	female
## 41	Ahlin, Mrs. Johan (Johanna Persdotter Larsson)		female
## 46		Rogers, Mr. William John	male
## 47		Lennon, Mr. Denis	male
## 49		Samaan, Mr. Youssef	male
## 50	Arnold-Franchi, Mrs. Josef (Josefine Franchi)		female
## 51		Panula, Master. Juha Niilo	male
## 52		Nosworthy, Mr. Richard Cater	male
## 55		Ostby, Mr. Engelhart Cornelius	male
## 58		Novel, Mr. Mansouer	male
## 60		Goodwin, Master. William Frederick	male
## 61		Sirayanian, Mr. Orsen	male
## 65		Stewart, Mr. Albert A	male
## 68		Crease, Mr. Ernest James	male
## 70		Kink, Mr. Vincenz	male
## 71		Jenkin, Mr. Stephen Curnow	male
## 72		Goodwin, Miss. Lillian Amy	female
## 74		Chronopoulos, Mr. Apostolos	male
## 76		Moen, Mr. Sigurd Hansen	male
## 77		Staneff, Mr. Ivan	male
## 78		Moutal, Mr. Rahamin Haim	male
## 84		Carrau, Mr. Francisco M	male
## 88		Slocovski, Mr. Selman Francis	male

## 90	Celotti, Mr. Francesco	male
## 91	Christmann, Mr. Emil	male
## 92	Andreasson, Mr. Paul Edvin	male
## 93	Chaffee, Mr. Herbert Fuller	male
## 94	Dean, Mr. Bertram Frank	male
## 96	Shorney, Mr. Charles Joseph	male
## 97	Goldschmidt, Mr. George B	male
## 100	Kantor, Mr. Sinai	male
## 101	Petranec, Miss. Matilda	female
## 104	Johansson, Mr. Gustaf Joel	male
## 105	Gustafsson, Mr. Anders Vilhelm	male
## 106	Mionoff, Mr. Stoytcho	male
## 109	Rekic, Mr. Tido	male
## 112	Zabour, Miss. Hileni	female
## 113	Barton, Mr. David John	male
## 115	Attalah, Miss. Malake	female
## 116	Pekoniemi, Mr. Edvard	male
## 118	Turpin, Mr. William John Robert	male
## 119	Baxter, Mr. Quigg Edmond	male
## 121	Hickman, Mr. Stanley George	male
## 122	Moore, Mr. Leonard Charles	male
## 123	Nasser, Mr. Nicholas	male
## 127	McMahon, Mr. Martin	male
## 132	Coelho, Mr. Domingos Fernandeo	male
## 140	Giglio, Mr. Victor	male
## 141	Boulos, Mrs. Joseph (Sultana)	female
## 144	Burke, Mr. Jeremiah	male
## 145	Andrew, Mr. Edgardo Samuel	male
## 146	Nicholls, Mr. Joseph Charles	male
## 150	Byles, Rev. Thomas Roussel Davids	male
## 151	Bateman, Rev. Robert James	male
## 153	Meo, Mr. Alfonzo	male
## 154	van Billiard, Mr. Austin Blyler	male
## 155	Olsen, Mr. Ole Martin	male
## 156	Williams, Mr. Charles Duane	male
## 158	Corn, Mr. Harry	male
## 159	Smiljanic, Mr. Mile	male
## 160	Sage, Master. Thomas Henry	male
## 161	Cribb, Mr. John Hatfield	male
## 164	Calic, Mr. Jovo	male
## 168	Skoog, Mrs. William (Anna Bernhardina Karlsson)	female
## 169	Baumann, Mr. John D	male
## 171	Van der hoef, Mr. Wyckoff	male
## 172	Rice, Master. Arthur	male
## 174	Sivola, Mr. Antti Wilhelm	male
## 175	Smith, Mr. James Clinch	male
## 176	Klasen, Mr. Klas Albin	male
## 178	Isham, Miss. Ann Elizabeth	female
## 179	Hale, Mr. Reginald	male
## 180	Leonard, Mr. Lionel	male
## 181	Sage, Miss. Constance Gladys	female
## 182	Pernot, Mr. Rene	male
## 190	Turcin, Mr. Stjepan	male
## 197	Mernagh, Mr. Robert	male

## 201	Vande Walle, Mr. Nestor Cyriel	male
## 202	Sage, Mr. Frederick	male
## 204	Youseff, Mr. Gerious	male
## 206	Strom, Miss. Telma Matilda	female
## 207	Backstrom, Mr. Karl Alfred	male
## 214	Givard, Mr. Hans Kristensen	male
## 215	Kiernan, Mr. Philip	male
## 218	Jacobsohn, Mr. Sidney Samuel	male
## 220	Harris, Mr. Walter	male
## 222	Bracken, Mr. James H	male
## 223	Green, Mr. George Henry	male
## 226	Berglund, Mr. Karl Ivar Sven	male
## 228	Lovell, Mr. John Hall ("Henry")	male
## 229	Fahlstrom, Mr. Arne Jonas	male
## 230	Lefebvre, Miss. Mathilde	female
## 232	Larsson, Mr. Bengt Edvin	male
## 233	Sjostedt, Mr. Ernst Adolf	male
## 235	Leyson, Mr. Robert William Norman	male
## 236	Harknett, Miss. Alice Phoebe	female
## 239	Pengelly, Mr. Frederick William	male
## 240	Hunt, Mr. George Henry	male
## 243	Coleridge, Mr. Reginald Charles	male
## 244	Maenpaa, Mr. Matti Alexanteri	male
## 245	Attalah, Mr. Sleiman	male
## 246	Minahan, Dr. William Edward	male
## 247	Lindahl, Miss. Agda Thorilda Viktoria	female
## 250	Carter, Rev. Ernest Courtenay	male
## 251	Reed, Mr. James George	male
## 253	Stead, Mr. William Thomas	male
## 255	Rosblom, Mrs. Viktor (Helena Wilhelmina)	female
## 261	Smith, Mr. Thomas	male
## 264	Harrison, Mr. William	male
## 265	Henry, Miss. Delia	female
## 266	Reeves, Mr. David	male
## 267	Panula, Mr. Ernesti Arvid	male
## 271	Cairns, Mr. Alexander	male
## 274	Natsch, Mr. Charles H	male
## 277	Lindblom, Miss. Augusta Charlotta	female
## 279	Rice, Master. Eric	male
## 281	Duane, Mr. Frank	male
## 282	Olsson, Mr. Nils Johan Goransson	male
## 283	de Pelsmaecker, Mr. Alfons	male
## 286	Stankovic, Mr. Ivan	male
## 288	Naidenoff, Mr. Penko	male
## 295	Mineff, Mr. Ivan	male
## 296	Lewy, Mr. Ervin G	male
## 297	Hanna, Mr. Mansour	male
## 303	Johnson, Mr. William Cahoone Jr	male
## 305	Williams, Mr. Howard Hugh "Harry"	male
## 309	Abelson, Mr. Samuel	male
## 313	Lahtinen, Mrs. William (Anna Sylfven)	female
## 314	Hendekovic, Mr. Ignjac	male
## 315	Hart, Mr. Benjamin	male
## 318	Moraweck, Dr. Ernest	male



## 321	Dennis, Mr. Samuel	male
## 325	Sage, Mr. George John Jr	male
## 327	Nysveen, Mr. Johan Hansen	male
## 332	Partner, Mr. Austen	male
## 333	Graham, Mr. George Edward	male
## 334	Vander Planke, Mr. Leo Edmondus	male
## 336	Denkoff, Mr. Mitto	male
## 337	Pears, Mr. Thomas Clinton	male
## 340	Blackwell, Mr. Stephen Weart	male
## 344	Sedgwick, Mr. Charles Frederick Waddington	male
## 351	Odahl, Mr. Nils Martin	male
## 352	Williams-Lambert, Mr. Fletcher Fellows	male
## 353	Elias, Mr. Tannous	male
## 354	Arnold-Franchi, Mr. Josef	male
## 356	Vanden Steen, Mr. Leo Peter	male
## 358	Funk, Miss. Annie Clemmer	female
## 362	del Carlo, Mr. Sebastiano	male
## 364	Asim, Mr. Adola	male
## 366	Adahl, Mr. Mauritz Nils Martin	male
## 372	Wiklund, Mr. Jakob Alfred	male
## 373	Beavan, Mr. William Thomas	male
## 374	Ringhini, Mr. Sante	male
## 375	Palsson, Miss. Stina Viola	female
## 378	Widener, Mr. Harry Elkins	male
## 379	Betros, Mr. Tannous	male
## 383	Tikkanen, Mr. Juho	male
## 385	Plotcharsky, Mr. Vasil	male
## 386	Davies, Mr. Charles Henry	male
## 389	Sadlier, Mr. Matthew	male
## 396	Johansson, Mr. Erik	male
## 397	Olsson, Miss. Elina	female
## 398	McKane, Mr. Peter David	male
## 399	Pain, Dr. Alfred	male
## 402	Adams, Mr. John	male
## 403	Jussila, Miss. Mari Aina	female
## 404	Hakkarainen, Mr. Pekka Pietari	male
## 405	Oreskovic, Miss. Marija	female
## 412	Hart, Mr. Henry	male
## 414	Cunningham, Mr. Alfred Fleming	male
## 419	Matthews, Mr. William John	male
## 420	Van Impe, Miss. Catharina	female
## 421	Gheorgheff, Mr. Stanio	male
## 423	Zimmerman, Mr. Leo	male
## 424	Danbom, Mrs. Ernst Gilbert (Anna Sigrid Maria Brogren)	female
## 425	Rosblom, Mr. Viktor Richard	male
## 426	Wiseman, Mr. Phillippe	male
## 429	Flynn, Mr. James	male
## 434	Kallio, Mr. Nikolai Erland	male
## 435	Silvey, Mr. William Baird	male
## 437	Ford, Miss. Doolina Margaret "Daisy"	female
## 439	Fortune, Mr. Mark	male
## 440	Kvillner, Mr. Johan Henrik Johannesson	male
## 443	Petterson, Mr. Johan Emil	male
## 451	West, Mr. Edwy Arthur	male

## 453	Foreman, Mr. Benjamin Laventall	male
## 457	Millet, Mr. Francis Davis	male
## 460	O'Connor, Mr. Maurice	male
## 465	Maisner, Mr. Simon	male
## 466	Goncalves, Mr. Manuel Estanslas	male
## 467	Campbell, Mr. William	male
## 468	Smart, Mr. John Montgomery	male
## 472	Cacic, Mr. Luka	male
## 475	Strandberg, Miss. Ida Sofia	female
## 476	Clifford, Mr. George Quincy	male
## 477	Renouf, Mr. Peter Henry	male
## 478	Braund, Mr. Lewis Richard	male
## 479	Karlsson, Mr. Nils August	male
## 482	Frost, Mr. Anthony Wood "Archie"	male
## 483	Rouse, Mr. Richard Henry	male
## 489	Somerton, Mr. Francis William	male
## 491	Hagland, Mr. Konrad Mathias Reiersen	male
## 493	Molson, Mr. Harry Markland	male
## 494	Artagaveytia, Mr. Ramon	male
## 495	Stanley, Mr. Edward Roland	male
## 496	Yousseff, Mr. Gerious	male
## 499	Allison, Mrs. Hudson J C (Bessie Waldo Daniels)	female
## 500	Svensson, Mr. Olof	male
## 502	Canavan, Miss. Mary	female
## 503	O'Sullivan, Miss. Bridget Mary	female
## 504	Laitinen, Miss. Kristina Sofia	female
## 509	Olsen, Mr. Henry Margido	male
## 515	Coleff, Mr. Satio	male
## 522	Vovk, Mr. Janko	male
## 523	Lahoud, Mr. Sarkis	male
## 525	Kassem, Mr. Fared	male
## 526	Farrell, Mr. James	male
## 529	Salonen, Mr. Johan Werner	male
## 530	Hocking, Mr. Richard George	male
## 535	Cacic, Miss. Marija	female
## 537	Butt, Major. Archibald Willingham	male
## 539	Risien, Mr. Samuel Beard	male
## 543	Andersson, Miss. Sigrid Elisabeth	female
## 545	Douglas, Mr. Walter Donald	male
## 549	Goldsmith, Mr. Frank John	male
## 553	O'Brien, Mr. Timothy	male
## 562	Sivic, Mr. Husein	male
## 563	Norman, Mr. Robert Douglas	male
## 564	Simmons, Mr. John	male
## 565	Meanwell, Miss. (Marion Ogden)	female
## 566	Davies, Mr. Alfred J	male
## 569	Doharr, Mr. Tannous	male
## 576	Patchett, Mr. George	male
## 579	Caram, Mrs. Joseph (Maria Elias)	female
## 585	Paulner, Mr. Uscher	male
## 587	Jarvis, Mr. John Denzil	male
## 589	Gilinski, Mr. Eliezer	male
## 594	Bourke, Miss. Mary	female
## 595	Chapman, Mr. John Henry	male

## 596	Van Impe, Mr. Jean Baptiste	male
## 599	Boulos, Mr. Hanna	male
## 602	Slabenoff, Mr. Petco	male
## 604	Torber, Mr. Ernst William	male
## 612	Jardin, Mr. Jose Neto	male
## 615	Brocklebank, Mr. William Alfred	male
## 617	Danbom, Mr. Ernst Gilbert	male
## 618	Lobb, Mrs. William Arthur (Cordelia K Stanlick)	female
## 620	Gavey, Mr. Lawrence	male
## 621	Yasbeck, Mr. Antoni	male
## 626	Sutton, Mr. Frederick	male
## 627	Kirkland, Rev. Charles Leonard	male
## 629	Bostandyeff, Mr. Guentcho	male
## 630	O'Connell, Mr. Patrick D	male
## 632	Lundahl, Mr. Johan Svensson	male
## 635	Skoog, Miss. Mabel	female
## 638	Collyer, Mr. Harvey	male
## 639	Panula, Mrs. Juha (Maria Emilia Ojala)	female
## 640	Thorneycroft, Mr. Percival	male
## 641	Jensen, Mr. Hans Peder	male
## 651	Mitkoff, Mr. Mito	male
## 653	Kalvik, Mr. Johannes Halvorsen	male
## 655	Hegarty, Miss. Hanora "Nora"	female
## 656	Hickman, Mr. Leonard Mark	male
## 657	Radeff, Mr. Alexander	male
## 658	Bourke, Mrs. John (Catherine)	female
## 659	Eitemiller, Mr. George Floyd	male
## 660	Newell, Mr. Arthur Webster	male
## 663	Colley, Mr. Edward Pomeroy	male
## 664	Coleff, Mr. Peju	male
## 666	Hickman, Mr. Lewis	male
## 667	Butler, Mr. Reginald Fenton	male
## 668	Rommetvedt, Mr. Knud Paust	male
## 669	Cook, Mr. Jacob	male
## 672	Davidson, Mr. Thornton	male
## 673	Mitchell, Mr. Henry Michael	male
## 676	Edvardsson, Mr. Gustaf Hjalmar	male
## 679	Goodwin, Mrs. Frederick (Augusta Tyler)	female
## 683	Olsvigen, Mr. Thor Anderson	male
## 687	Panula, Mr. Jaako Arnold	male
## 688	Dakic, Mr. Branko	male
## 689	Fischer, Mr. Eberhard Thelander	male
## 694	Saad, Mr. Khalil	male
## 695	Weir, Col. John	male
## 696	Chapman, Mr. Charles Henry	male
## 697	Kelly, Mr. James	male
## 699	Thayer, Mr. John Borland	male
## 700	Humblen, Mr. Adolf Mathias Nicolai Olsen	male
## 703	Barbara, Miss. Saiide	female
## 705	Hansen, Mr. Henrik Juul	male
## 706	Morley, Mr. Henry Samuel ("Mr Henry Marshall")	male
## 712	Klaber, Mr. Herman	male
## 714	Larsson, Mr. August Viktor	male
## 716	Soholt, Mr. Peter Andreas Lauritz Andersen	male

## 719	McEvoy, Mr. Michael	male
## 720	Johnson, Mr. Malkolm Joackim	male
## 722	Jensen, Mr. Svend Lauritz	male
## 723	Gillespie, Mr. William Henry	male
## 726	Oreskovic, Mr. Luka	male
## 729	Bryhl, Mr. Kurt Arnold Gottfrid	male
## 730	Ilmakangas, Miss. Pieta Sofia	female
## 732	Hassan, Mr. Houssein G N	male
## 733	Knight, Mr. Robert J	male
## 737	Ford, Mrs. Edward (Margaret Ann Watson)	female
## 739	Ivanoff, Mr. Kanio	male
## 740	Nankoff, Mr. Minko	male
## 744	McNamee, Mr. Neal	male
## 746	Crosby, Capt. Edward Gifford	male
## 747	Abbott, Mr. Rossmore Edward	male
## 749	Marvin, Mr. Daniel Warner	male
## 750	Connaghton, Mr. Michael	male
## 758	Bailey, Mr. Percy Andrew	male
## 759	Theobald, Mr. Thomas Leonard	male
## 761	Garfirth, Mr. John	male
## 762	Nirva, Mr. Iisakki Antino Aijo	male
## 765	Eklund, Mr. Hans Linus	male
## 767	Brewe, Dr. Arthur Jackson	male
## 768	Mangan, Miss. Mary	female
## 769	Moran, Mr. Daniel J	male
## 770	Gronnestad, Mr. Daniel Danielsen	male
## 771	Lievens, Mr. Rene Aime	male
## 776	Myhrman, Mr. Pehr Fabian Oliver Malkolm	male
## 777	Tobin, Mr. Roger	male
## 779	Kilgannon, Mr. Thomas J	male
## 783	Long, Mr. Milton Clyde	male
## 784	Johnston, Mr. Andrew G	male
## 788	Rice, Master. George Hugh	male
## 790	Guggenheim, Mr. Benjamin	male
## 791	Keane, Mr. Andrew "Andy"	male
## 792	Gaskell, Mr. Alfred	male
## 793	Sage, Miss. Stella Anna	female
## 794	Hoyt, Mr. William Fisher	male
## 795	Dantcheff, Mr. Ristiu	male
## 796	Otter, Mr. Richard	male
## 799	Ibrahim Shawah, Mr. Yousseff	male
## 800	Van Impe, Mrs. Jean Baptiste (Rosalie Paula Govaert)	female
## 801	Ponesell, Mr. Martin	male
## 807	Andrews, Mr. Thomas Jr	male
## 808	Pettersson, Miss. Ellen Natalia	female
## 809	Meyer, Mr. August	male
## 812	Lester, Mr. James	male
## 814	Andersson, Miss. Ebba Iris Alfrida	female
## 816	Fry, Mr. Richard	male
## 817	Heininen, Miss. Wendla Maria	female
## 818	Mallet, Mr. Albert	male
## 819	Holm, Mr. John Fredrik Alexander	male
## 820	Skoog, Master. Karl Thorsten	male
## 823	Reuchlin, Jonkheer. John George	male

## 825	Panula, Master. Urho Abraham	male
## 826	Flynn, Mr. John	male
## 834	Augustsson, Mr. Albert	male
## 837	Pasic, Mr. Jakob	male
## 841	Alhomaki, Mr. Ilmari Rudolf	male
## 844	Lemberopolous, Mr. Peter L	male
## 845	Culumovic, Mr. Jeso	male
## 847	Sage, Mr. Douglas Bullen	male
## 848	Markoff, Mr. Marin	male
## 849	Harper, Rev. John	male
## 851	Andersson, Master. Sigvard Harald Elias	male
## 852	Svensson, Mr. Johan	male
## 853	Boulos, Miss. Nourelain	female
## 855	Carter, Mrs. Ernest Courtenay (Lilian Hughes)	female
## 860	Razi, Mr. Raihed	male
## 861	Hansen, Mr. Claus Peter	male
## 862	Giles, Mr. Frederick Edward	male
## 864	Sage, Miss. Dorothy Edith "Dolly"	female
## 865	Gill, Mr. John William	male
## 868	Roebing, Mr. Washington Augustus II	male
## 874	Vander Cruyssen, Mr. Victor	male
## 877	Gustafsson, Mr. Alfred Ossian	male
## 878	Petroff, Mr. Nedelio	male
## 882	Markun, Mr. Johann	male
## 883	Dahlberg, Miss. Gerda Ulrika	female
## 884	Banfield, Mr. Frederick James	male
## 885	Sutehall, Mr. Henry Jr	male
## 891	Dooley, Mr. Patrick	male
## 2	Cumings, Mrs. John Bradley (Florence Briggs Thayer)	female
## 10	Nasser, Mrs. Nicholas (Adele Achem)	female
## 16	Hewlett, Mrs. (Mary D Kingcome)	female
## 26	Asplund, Mrs. Carl Oscar (Selma Augusta Emilia Johansson)	female
## 32	Spencer, Mrs. William Augustus (Marie Eugenie)	female
## 33	Glynn, Miss. Mary Agatha	female
## 37	Mamee, Mr. Hanna	male
## 44	Laroche, Miss. Simonne Marie Anne Andree	female
## 45	Devaney, Miss. Margaret Delia	female
## 48	O'Driscoll, Miss. Bridget	female
## 53	Harper, Mrs. Henry Sleeper (Myna Haxtun)	female
## 54	Faunthorpe, Mrs. Lizzie (Elizabeth Anne Wilkinson)	female
## 56	Woolner, Mr. Hugh	male
## 59	West, Miss. Constance Mirium	female
## 62	Icard, Miss. Amelie	female
## 67	Nye, Mrs. (Elizabeth Ramell)	female
## 69	Andersson, Miss. Erna Alexandra	female
## 75	Bing, Mr. Lee	male
## 79	Caldwell, Master. Alden Gates	male
## 80	Dowdell, Miss. Elizabeth	female
## 85	Ilett, Miss. Bertha	female
## 86	Backstrom, Mrs. Karl Alfred (Maria Mathilda Gustafsson)	female
## 89	Fortune, Miss. Mabel Helen	female
## 108	Moss, Mr. Albert Johan	male
## 110	Moran, Miss. Bertha	female
## 128	Madsen, Mr. Fridtjof Arne	male

## 129	Peter, Miss. Anna	female
## 134	Weisz, Mrs. Leopold (Mathilde Francoise Pede)	female
## 137	Newsom, Miss. Helen Monypeny	female
## 142	Nysten, Miss. Anna Sofia	female
## 143	Hakkarainen, Mrs. Pekka Pietari (Elin Matilda Dolck)	female
## 152	Pears, Mrs. Thomas (Edith Wearne)	female
## 162	Watt, Mrs. James (Elizabeth "Bessie" Inglis Milne)	female
## 167	Chibnall, Mrs. (Edith Martha Bowerman)	female
## 184	Becker, Master. Richard F	male
## 185	Kink-Heilmann, Miss. Luise Gretchen	female
## 187	O'Brien, Mrs. Thomas (Johanna "Hannah" Godfrey)	female
## 188	Romaine, Mr. Charles Hallace ("Mr C Rolmane")	male
## 193	Andersen-Jensen, Miss. Carla Christine Nielsine	female
## 194	Navratil, Master. Michel M	male
## 195	Brown, Mrs. James Joseph (Margaret Tobin)	female
## 196	Lurette, Miss. Elise	female
## 199	Madigan, Miss. Margaret "Maggie"	female
## 205	Cohen, Mr. Gurshon "Gus"	male
## 208	Albimona, Mr. Nassef Cassem	male
## 209	Carr, Miss. Helen "Ellen"	female
## 210	Blank, Mr. Henry	male
## 212	Cameron, Miss. Clear Annie	female
## 217	Honkanen, Miss. Eliina	female
## 219	Bazzani, Miss. Albina	female
## 227	Mellors, Mr. William John	male
## 234	Asplund, Miss. Lillian Gertrud	female
## 242	Murphy, Miss. Katherine "Kate"	female
## 249	Beckwith, Mr. Richard Leonard	male
## 256	Touma, Mrs. Darwis (Hanne Youssef Razi)	female
## 257	Thorne, Mrs. Gertrude Maybelle	female
## 258	Cherry, Miss. Gladys	female
## 259	Ward, Miss. Anna	female
## 260	Parrish, Mrs. (Lutie Davis)	female
## 268	Persson, Mr. Ernst Ulrik	male
## 269	Graham, Mrs. William Thompson (Edith Junkins)	female
## 270	Bissette, Miss. Amelia	female
## 272	Tornquist, Mr. William Henry	male
## 273	Mellinger, Mrs. (Elizabeth Anne Maidment)	female
## 275	Healy, Miss. Hanora "Nora"	female
## 284	Dorking, Mr. Edward Arthur	male
## 289	Hosono, Mr. Masabumi	male
## 290	Connolly, Miss. Kate	female
## 291	Barber, Miss. Ellen "Nellie"	female
## 292	Bishop, Mrs. Dickinson H (Helen Walton)	female
## 299	Saalfeld, Mr. Adolphe	male
## 300	Baxter, Mrs. James (Helene DeLaudeniere Chaput)	female
## 301	Kelly, Miss. Anna Katherine "Annie Kate"	female
## 302	McCoy, Mr. Bernard	male
## 304	Keane, Miss. Nora A	female
## 306	Allison, Master. Hudson Trevor	male
## 307	Fleming, Miss. Margaret	female
## 310	Francatelli, Miss. Laura Mabel	female
## 317	Kantor, Mrs. Sinai (Miriam Sternin)	female
## 319	Wick, Miss. Mary Natalie	female

## 323	Slayter, Miss. Hilda Mary	female
## 324	Caldwell, Mrs. Albert Francis (Sylvia Mae Harbaugh)	female
## 326	Young, Miss. Marie Grice	female
## 328	Ball, Mrs. (Ada E Hall)	female
## 329	Goldsmith, Mrs. Frank John (Emily Alice Brown)	female
## 330	Hippach, Miss. Jean Gertrude	female
## 331	McCoy, Miss. Agnes	female
## 335	Frauenthal, Mrs. Henry William (Clara Heinsheimer)	female
## 338	Burns, Miss. Elizabeth Margaret	female
## 339	Dahl, Mr. Karl Edwart	male
## 342	Fortune, Miss. Alice Elizabeth	female
## 347	Smith, Miss. Marion Elsie	female
## 348	Davison, Mrs. Thomas Henry (Mary E Finck)	female
## 349	Coutts, Master. William Loch "William"	male
## 357	Bowerman, Miss. Elsie Edith	female
## 359	McGovern, Miss. Mary	female
## 367	Warren, Mrs. Frank Manley (Anna Sophia Atkinson)	female
## 368	Moussa, Mrs. (Mantoura Boulos)	female
## 369	Jermyn, Miss. Annie	female
## 370	Aubart, Mme. Leontine Pauline	female
## 371	Harder, Mr. George Achilles	male
## 377	Landergren, Miss. Aurora Adelia	female
## 382	Nakid, Miss. Maria ("Mary")	female
## 388	Buss, Miss. Kate	female
## 390	Lehmann, Miss. Bertha	female
## 401	Niskanen, Mr. Juha	male
## 413	Minahan, Miss. Daisy E	female
## 417	Drew, Mrs. James Vivian (Lulu Thorne Christian)	female
## 418	Silven, Miss. Lyyli Karoliina	female
## 427	Clarke, Mrs. Charles V (Ada Maria Winfield)	female
## 428	Phillips, Miss. Kate Florence ("Mrs Kate Louise Phillips Marshall")	female
## 430	Pickard, Mr. Berk (Berk Trembisky)	male
## 431	Bjornstrom-Steffansson, Mr. Mauritz Hakan	male
## 432	Thorneycroft, Mrs. Percival (Florence Kate White)	female
## 433	Louch, Mrs. Charles Alexander (Alice Adelaide Slow)	female
## 438	Richards, Mrs. Sidney (Emily Hocking)	female
## 441	Hart, Mrs. Benjamin (Esther Ada Bloomfield)	female
## 444	Reynaldo, Ms. Encarnacion	female
## 445	Johannesen-Bratthammer, Mr. Bernt	male
## 446	Dodge, Master. Washington	male
## 448	Seward, Mr. Frederic Kimber	male
## 454	Goldenberg, Mr. Samuel L	male
## 456	Jalsevac, Mr. Ivan	male
## 458	Kenyon, Mrs. Frederick R (Marion)	female
## 461	Anderson, Mr. Harry	male
## 470	Baclini, Miss. Helene Barbara	female
## 473	West, Mrs. Edwy Arthur (Ada Mary Worth)	female
## 474	Jerwan, Mrs. Amin S (Marie Marthe Thuillard)	female
## 487	Hoyt, Mrs. Frederick Maxfield (Jane Anne Forby)	female
## 490	Coutts, Master. Eden Leslie "Neville"	male
## 497	Eustis, Miss. Elizabeth Mussey	female
## 505	Maioni, Miss. Roberta	female
## 507	Quick, Mrs. Frederick Charles (Jane Richards)	female
## 508	Bradley, Mr. George ("George Arthur Brayton")	male

## 510	Lang, Mr. Fang	male
## 513	McGough, Mr. James Robert	male
## 514	Rothschild, Mrs. Martin (Elizabeth L. Barrett)	female
## 517	Lemore, Mrs. (Amelia Milley)	female
## 519	Angle, Mrs. William A (Florence "Mary" Agnes Hughes)	female
## 521	Perreault, Miss. Anne	female
## 524	Hippach, Mrs. Louis Albert (Ida Sophia Fischer)	female
## 527	Ridsdale, Miss. Lucy	female
## 531	Quick, Miss. Phyllis May	female
## 534	Peter, Mrs. Catherine (Catherine Rizk)	female
## 536	Hart, Miss. Eva Miriam	female
## 538	LeRoy, Miss. Bertha	female
## 540	Frolicher, Miss. Hedwig Margaritha	female
## 541	Crosby, Miss. Harriet R	female
## 544	Beane, Mr. Edward	male
## 547	Beane, Mrs. Edward (Ethel Clarke)	female
## 551	Thayer, Mr. John Borland Jr	male
## 554	Leeni, Mr. Fahim ("Philip Zenni")	male
## 555	Ohman, Miss. Velin	female
## 557	Duff Gordon, Lady. (Lucille Christiana Sutherland) ("Mrs Morgan")	female
## 559	Taussig, Mrs. Emil (Tillie Mandelbaum)	female
## 560	de Messemaeker, Mrs. Guillaume Joseph (Emma)	female
## 570	Jonsson, Mr. Carl	male
## 572	Appleton, Mrs. Edward Dale (Charlotte Lamson)	female
## 573	Flynn, Mr. John Irwin ("Irving")	male
## 574	Kelly, Miss. Mary	female
## 577	Garside, Miss. Ethel	female
## 578	Silvey, Mrs. William Baird (Alice Munger)	female
## 580	Jussila, Mr. Eiriik	male
## 581	Christy, Miss. Julie Rachel	female
## 586	Taussig, Miss. Ruth	female
## 592	Stephenson, Mrs. Walter Bertram (Martha Eustis)	female
## 597	Leitch, Miss. Jessie Wills	female
## 600	Duff Gordon, Sir. Cosmo Edmund ("Mr Morgan")	male
## 605	Homer, Mr. Harry ("Mr E Haven")	male
## 608	Daniel, Mr. Robert Williams	male
## 613	Murphy, Miss. Margaret Jane	female
## 619	Becker, Miss. Marion Louise	female
## 622	Kimball, Mr. Edwin Nelson Jr	male
## 623	Nakid, Mr. Sahid	male
## 631	Barkworth, Mr. Algernon Henry Wilson	male
## 633	Stahelin-Maeglin, Dr. Max	male
## 636	Davis, Miss. Mary	female
## 642	Sagesser, Mlle. Emma	female
## 645	Baclini, Miss. Eugenie	female
## 646	Harper, Mr. Henry Sleeper	male
## 650	Stanley, Miss. Amy Zillah Elsie	female
## 654	O'Leary, Miss. Hanora "Norah"	female
## 665	Lindqvist, Mr. Eino William	male
## 671	Brown, Mrs. Thomas William Solomon (Elizabeth Catherine Ford)	female
## 678	Turja, Miss. Anna Sofia	female
## 690	Madill, Miss. Georgette Alexandra	female
## 691	Dick, Mr. Albert Adrian	male
## 692	Karun, Miss. Manca	female



## 701	Astor, Mrs. John Jacob (Madeleine Talmadge Force)	female
## 702	Silverthorne, Mr. Spencer Victor	male
## 707	Kelly, Mrs. Florence "Fannie"	female
## 708	Calderhead, Mr. Edward Pennington	male
## 709	Cleaver, Miss. Alice	female
## 710	Moubarek, Master. Halim Gonios ("William George")	male
## 717	Endres, Miss. Caroline Louise	female
## 718	Troutt, Miss. Edwina Celia "Winnie"	female
## 727	Renouf, Mrs. Peter Henry (Lillian Jefferys)	female
## 731	Allen, Miss. Elisabeth Walton	female
## 738	Lesurer, Mr. Gustave J	male
## 741	Hawksford, Mr. Walter James	male
## 745	Stranden, Mr. Juho	male
## 751	Wells, Miss. Joan	female
## 752	Moor, Master. Meier	male
## 756	Hamalainen, Master. Viljo	male
## 760	Roths, the Countess. of (Lucy Noel Martha Dyer-Edwards)	female
## 766	Hogeboom, Mrs. John C (Anna Andrews)	female
## 775	Hocking, Mrs. Elizabeth (Eliza Needs)	female
## 778	Emanuel, Miss. Virginia Ethel	female
## 782	Dick, Mrs. Albert Adrian (Vera Gillespie)	female
## 787	Sjoblom, Miss. Anna Sofia	female
## 789	Dean, Master. Bertram Vere	male
## 797	Leader, Dr. Alice (Farnham)	female
## 802	Collyer, Mrs. Harvey (Charlotte Annie Tate)	female
## 804	Thomas, Master. Assad Alexander	male
## 805	Hedman, Mr. Oskar Arvid	male
## 810	Chambers, Mrs. Norman Campbell (Bertha Griggs)	female
## 821	Hays, Mrs. Charles Melville (Clara Jennings Gregg)	female
## 822	Lulic, Mr. Nikola	male
## 824	Moor, Mrs. (Beila)	female
## 828	Mallet, Master. Andre	male
## 830	Stone, Mrs. George Nelson (Martha Evelyn)	female
## 831	Yasbeck, Mrs. Antoni (Selini Alexander)	female
## 836	Compton, Miss. Sara Rebecca	female
## 843	Serepeca, Miss. Augusta	female
## 850	Goldenberg, Mrs. Samuel L (Edwiga Grabowska)	female
## 854	Lines, Miss. Mary Conover	female
## 856	Aks, Mrs. Sam (Leah Rosen)	female
## 857	Wick, Mrs. George Dennick (Mary Hitchcock)	female
## 858	Daly, Mr. Peter Denis	male
## 859	Baclini, Mrs. Solomon (Latifa Qurban)	female
## 866	Bystrom, Mrs. (Karolina)	female
## 867	Duran y More, Miss. Asuncion	female
## 870	Johnson, Master. Harold Theodor	male
## 875	Abelson, Mrs. Samuel (Hannah Wizosky)	female
## 876	Najib, Miss. Adele Kiamie "Jane"	female
## 880	Potter, Mrs. Thomas Jr (Lily Alexenia Wilson)	female
## 881	Shelley, Mrs. William (Imanita Parrish Hall)	female
## 888	Graham, Miss. Margaret Edith	female
## 890	Behr, Mr. Karl Howell	male
##	age sib_sp parch	ticket fare cabin embarked
## 1	22.00 1 0	A/5 21171 7.2500 <NA> S
## 6	NA 0 0	330877 8.4583 <NA> Q

## 7	54.00	0	0	17463	51.8625	E46	S
## 13	20.00	0	0	A/5. 2151	8.0500	<NA>	S
## 14	39.00	1	5	347082	31.2750	<NA>	S
## 19	31.00	1	0	345763	18.0000	<NA>	S
## 28	19.00	3	2	19950	263.0000	C23 C25 C27	S
## 30	NA	0	0	349216	7.8958	<NA>	S
## 34	66.00	0	0	C.A. 24579	10.5000	<NA>	S
## 39	18.00	2	0	345764	18.0000	<NA>	S
## 41	40.00	1	0	7546	9.4750	<NA>	S
## 46	NA	0	0	S.C./A.4. 23567	8.0500	<NA>	S
## 47	NA	1	0	370371	15.5000	<NA>	Q
## 49	NA	2	0	2662	21.6792	<NA>	C
## 50	18.00	1	0	349237	17.8000	<NA>	S
## 51	7.00	4	1	3101295	39.6875	<NA>	S
## 52	21.00	0	0	A/4. 39886	7.8000	<NA>	S
## 55	65.00	0	1	113509	61.9792	B30	C
## 58	28.50	0	0	2697	7.2292	<NA>	C
## 60	11.00	5	2	CA 2144	46.9000	<NA>	S
## 61	22.00	0	0	2669	7.2292	<NA>	C
## 65	NA	0	0	PC 17605	27.7208	<NA>	C
## 68	19.00	0	0	S.P. 3464	8.1583	<NA>	S
## 70	26.00	2	0	315151	8.6625	<NA>	S
## 71	32.00	0	0	C.A. 33111	10.5000	<NA>	S
## 72	16.00	5	2	CA 2144	46.9000	<NA>	S
## 74	26.00	1	0	2680	14.4542	<NA>	C
## 76	25.00	0	0	348123	7.6500	F G73	S
## 77	NA	0	0	349208	7.8958	<NA>	S
## 78	NA	0	0	374746	8.0500	<NA>	S
## 84	28.00	0	0	113059	47.1000	<NA>	S
## 88	NA	0	0	SOTON/OQ 392086	8.0500	<NA>	S
## 90	24.00	0	0	343275	8.0500	<NA>	S
## 91	29.00	0	0	343276	8.0500	<NA>	S
## 92	20.00	0	0	347466	7.8542	<NA>	S
## 93	46.00	1	0	W.E.P. 5734	61.1750	E31	S
## 94	26.00	1	2	C.A. 2315	20.5750	<NA>	S
## 96	NA	0	0	374910	8.0500	<NA>	S
## 97	71.00	0	0	PC 17754	34.6542	A5	C
## 100	34.00	1	0	244367	26.0000	<NA>	S
## 101	28.00	0	0	349245	7.8958	<NA>	S
## 104	33.00	0	0	7540	8.6542	<NA>	S
## 105	37.00	2	0	3101276	7.9250	<NA>	S
## 106	28.00	0	0	349207	7.8958	<NA>	S
## 109	38.00	0	0	349249	7.8958	<NA>	S
## 112	14.50	1	0	2665	14.4542	<NA>	C
## 113	22.00	0	0	324669	8.0500	<NA>	S
## 115	17.00	0	0	2627	14.4583	<NA>	C
## 116	21.00	0	0	STON/O 2. 3101294	7.9250	<NA>	S
## 118	29.00	1	0	11668	21.0000	<NA>	S
## 119	24.00	0	1	PC 17558	247.5208	B58 B60	C
## 121	21.00	2	0	S.O.C. 14879	73.5000	<NA>	S
## 122	NA	0	0	A4. 54510	8.0500	<NA>	S
## 123	32.50	1	0	237736	30.0708	<NA>	C
## 127	NA	0	0	370372	7.7500	<NA>	Q
## 132	20.00	0	0	SOTON/O.Q. 3101307	7.0500	<NA>	S

## 140	24.00	0	0	PC 17593	79.2000	B86	C
## 141	NA	0	2	2678	15.2458	<NA>	C
## 144	19.00	0	0	365222	6.7500	<NA>	Q
## 145	18.00	0	0	231945	11.5000	<NA>	S
## 146	19.00	1	1	C.A. 33112	36.7500	<NA>	S
## 150	42.00	0	0	244310	13.0000	<NA>	S
## 151	51.00	0	0	S.O.P. 1166	12.5250	<NA>	S
## 153	55.50	0	0	A.5. 11206	8.0500	<NA>	S
## 154	40.50	0	2	A/5. 851	14.5000	<NA>	S
## 155	NA	0	0	Fa 265302	7.3125	<NA>	S
## 156	51.00	0	1	PC 17597	61.3792	<NA>	C
## 158	30.00	0	0	SOTON/OQ 392090	8.0500	<NA>	S
## 159	NA	0	0	315037	8.6625	<NA>	S
## 160	NA	8	2	CA. 2343	69.5500	<NA>	S
## 161	44.00	0	1	371362	16.1000	<NA>	S
## 164	17.00	0	0	315093	8.6625	<NA>	S
## 168	45.00	1	4	347088	27.9000	<NA>	S
## 169	NA	0	0	PC 17318	25.9250	<NA>	S
## 171	61.00	0	0	111240	33.5000	B19	S
## 172	4.00	4	1	382652	29.1250	<NA>	Q
## 174	21.00	0	0	STON/O 2. 3101280	7.9250	<NA>	S
## 175	56.00	0	0	17764	30.6958	A7	C
## 176	18.00	1	1	350404	7.8542	<NA>	S
## 178	50.00	0	0	PC 17595	28.7125	C49	C
## 179	30.00	0	0	250653	13.0000	<NA>	S
## 180	36.00	0	0	LINE	0.0000	<NA>	S
## 181	NA	8	2	CA. 2343	69.5500	<NA>	S
## 182	NA	0	0	SC/PARIS 2131	15.0500	<NA>	C
## 190	36.00	0	0	349247	7.8958	<NA>	S
## 197	NA	0	0	368703	7.7500	<NA>	Q
## 201	28.00	0	0	345770	9.5000	<NA>	S
## 202	NA	8	2	CA. 2343	69.5500	<NA>	S
## 204	45.50	0	0	2628	7.2250	<NA>	C
## 206	2.00	0	1	347054	10.4625	G6	S
## 207	32.00	1	0	3101278	15.8500	<NA>	S
## 214	30.00	0	0	250646	13.0000	<NA>	S
## 215	NA	1	0	367229	7.7500	<NA>	Q
## 218	42.00	1	0	243847	27.0000	<NA>	S
## 220	30.00	0	0	W/C 14208	10.5000	<NA>	S
## 222	27.00	0	0	220367	13.0000	<NA>	S
## 223	51.00	0	0	21440	8.0500	<NA>	S
## 226	22.00	0	0	PP 4348	9.3500	<NA>	S
## 228	20.50	0	0	A/5 21173	7.2500	<NA>	S
## 229	18.00	0	0	236171	13.0000	<NA>	S
## 230	NA	3	1	4133	25.4667	<NA>	S
## 232	29.00	0	0	347067	7.7750	<NA>	S
## 233	59.00	0	0	237442	13.5000	<NA>	S
## 235	24.00	0	0	C.A. 29566	10.5000	<NA>	S
## 236	NA	0	0	W./C. 6609	7.5500	<NA>	S
## 239	19.00	0	0	28665	10.5000	<NA>	S
## 240	33.00	0	0	SCO/W 1585	12.2750	<NA>	S
## 243	29.00	0	0	W./C. 14263	10.5000	<NA>	S
## 244	22.00	0	0	STON/O 2. 3101275	7.1250	<NA>	S
## 245	30.00	0	0	2694	7.2250	<NA>	C

## 246	44.00	2	0	19928	90.0000	C78	Q
## 247	25.00	0	0	347071	7.7750	<NA>	S
## 250	54.00	1	0	244252	26.0000	<NA>	S
## 251	NA	0	0	362316	7.2500	<NA>	S
## 253	62.00	0	0	113514	26.5500	C87	S
## 255	41.00	0	2	370129	20.2125	<NA>	S
## 261	NA	0	0	384461	7.7500	<NA>	Q
## 264	40.00	0	0	112059	0.0000	B94	S
## 265	NA	0	0	382649	7.7500	<NA>	Q
## 266	36.00	0	0	C.A. 17248	10.5000	<NA>	S
## 267	16.00	4	1	3101295	39.6875	<NA>	S
## 271	NA	0	0	113798	31.0000	<NA>	S
## 274	37.00	0	1	PC 17596	29.7000	C118	C
## 277	45.00	0	0	347073	7.7500	<NA>	S
## 279	7.00	4	1	382652	29.1250	<NA>	Q
## 281	65.00	0	0	336439	7.7500	<NA>	Q
## 282	28.00	0	0	347464	7.8542	<NA>	S
## 283	16.00	0	0	345778	9.5000	<NA>	S
## 286	33.00	0	0	349239	8.6625	<NA>	C
## 288	22.00	0	0	349206	7.8958	<NA>	S
## 295	24.00	0	0	349233	7.8958	<NA>	S
## 296	NA	0	0	PC 17612	27.7208	<NA>	C
## 297	23.50	0	0	2693	7.2292	<NA>	C
## 303	19.00	0	0	LINE	0.0000	<NA>	S
## 305	NA	0	0	A/5 2466	8.0500	<NA>	S
## 309	30.00	1	0	P/PP 3381	24.0000	<NA>	C
## 313	26.00	1	1	250651	26.0000	<NA>	S
## 314	28.00	0	0	349243	7.8958	<NA>	S
## 315	43.00	1	1	F.C.C. 13529	26.2500	<NA>	S
## 318	54.00	0	0	29011	14.0000	<NA>	S
## 321	22.00	0	0	A/5 21172	7.2500	<NA>	S
## 325	NA	8	2	CA. 2343	69.5500	<NA>	S
## 327	61.00	0	0	345364	6.2375	<NA>	S
## 332	45.50	0	0	113043	28.5000	C124	S
## 333	38.00	0	1	PC 17582	153.4625	C91	S
## 334	16.00	2	0	345764	18.0000	<NA>	S
## 336	NA	0	0	349225	7.8958	<NA>	S
## 337	29.00	1	0	113776	66.6000	C2	S
## 340	45.00	0	0	113784	35.5000	T	S
## 344	25.00	0	0	244361	13.0000	<NA>	S
## 351	23.00	0	0	7267	9.2250	<NA>	S
## 352	NA	0	0	113510	35.0000	C128	S
## 353	15.00	1	1	2695	7.2292	<NA>	C
## 354	25.00	1	0	349237	17.8000	<NA>	S
## 356	28.00	0	0	345783	9.5000	<NA>	S
## 358	38.00	0	0	237671	13.0000	<NA>	S
## 362	29.00	1	0	SC/PARIS 2167	27.7208	<NA>	C
## 364	35.00	0	0	SOTON/O.Q. 3101310	7.0500	<NA>	S
## 366	30.00	0	0	C 7076	7.2500	<NA>	S
## 372	18.00	1	0	3101267	6.4958	<NA>	S
## 373	19.00	0	0	323951	8.0500	<NA>	S
## 374	22.00	0	0	PC 17760	135.6333	<NA>	C
## 375	3.00	3	1	349909	21.0750	<NA>	S
## 378	27.00	0	2	113503	211.5000	C82	C

## 379	20.00	0	0	2648	4.0125	<NA>	C
## 383	32.00	0	0	STON/O 2. 3101293	7.9250	<NA>	S
## 385	NA	0	0	349227	7.8958	<NA>	S
## 386	18.00	0	0	S.O.C. 14879	73.5000	<NA>	S
## 389	NA	0	0	367655	7.7292	<NA>	Q
## 396	22.00	0	0	350052	7.7958	<NA>	S
## 397	31.00	0	0	350407	7.8542	<NA>	S
## 398	46.00	0	0	28403	26.0000	<NA>	S
## 399	23.00	0	0	244278	10.5000	<NA>	S
## 402	26.00	0	0	341826	8.0500	<NA>	S
## 403	21.00	1	0	4137	9.8250	<NA>	S
## 404	28.00	1	0	STON/O2. 3101279	15.8500	<NA>	S
## 405	20.00	0	0	315096	8.6625	<NA>	S
## 412	NA	0	0	394140	6.8583	<NA>	Q
## 414	NA	0	0	239853	0.0000	<NA>	S
## 419	30.00	0	0	28228	13.0000	<NA>	S
## 420	10.00	0	2	345773	24.1500	<NA>	S
## 421	NA	0	0	349254	7.8958	<NA>	C
## 423	29.00	0	0	315082	7.8750	<NA>	S
## 424	28.00	1	1	347080	14.4000	<NA>	S
## 425	18.00	1	1	370129	20.2125	<NA>	S
## 426	NA	0	0	A/4. 34244	7.2500	<NA>	S
## 429	NA	0	0	364851	7.7500	<NA>	Q
## 434	17.00	0	0	STON/O 2. 3101274	7.1250	<NA>	S
## 435	50.00	1	0	13507	55.9000	E44	S
## 437	21.00	2	2	W./C. 6608	34.3750	<NA>	S
## 439	64.00	1	4	19950	263.0000	C23 C25 C27	S
## 440	31.00	0	0	C.A. 18723	10.5000	<NA>	S
## 443	25.00	1	0	347076	7.7750	<NA>	S
## 451	36.00	1	2	C.A. 34651	27.7500	<NA>	S
## 453	30.00	0	0	113051	27.7500	C111	C
## 457	65.00	0	0	13509	26.5500	E38	S
## 460	NA	0	0	371060	7.7500	<NA>	Q
## 465	NA	0	0	A/S 2816	8.0500	<NA>	S
## 466	38.00	0	0	SOTON/O.Q. 3101306	7.0500	<NA>	S
## 467	NA	0	0	239853	0.0000	<NA>	S
## 468	56.00	0	0	113792	26.5500	<NA>	S
## 472	38.00	0	0	315089	8.6625	<NA>	S
## 475	22.00	0	0	7553	9.8375	<NA>	S
## 476	NA	0	0	110465	52.0000	A14	S
## 477	34.00	1	0	31027	21.0000	<NA>	S
## 478	29.00	1	0	3460	7.0458	<NA>	S
## 479	22.00	0	0	350060	7.5208	<NA>	S
## 482	NA	0	0	239854	0.0000	<NA>	S
## 483	50.00	0	0	A/5 3594	8.0500	<NA>	S
## 489	30.00	0	0	A.5. 18509	8.0500	<NA>	S
## 491	NA	1	0	65304	19.9667	<NA>	S
## 493	55.00	0	0	113787	30.5000	C30	S
## 494	71.00	0	0	PC 17609	49.5042	<NA>	C
## 495	21.00	0	0	A/4 45380	8.0500	<NA>	S
## 496	NA	0	0	2627	14.4583	<NA>	C
## 499	25.00	1	2	113781	151.5500	C22 C26	S
## 500	24.00	0	0	350035	7.7958	<NA>	S
## 502	21.00	0	0	364846	7.7500	<NA>	Q

## 503	NA	0	0	330909	7.6292	<NA>	Q
## 504	37.00	0	0	4135	9.5875	<NA>	S
## 509	28.00	0	0	C 4001	22.5250	<NA>	S
## 515	24.00	0	0	349209	7.4958	<NA>	S
## 522	22.00	0	0	349252	7.8958	<NA>	S
## 523	NA	0	0	2624	7.2250	<NA>	C
## 525	NA	0	0	2700	7.2292	<NA>	C
## 526	40.50	0	0	367232	7.7500	<NA>	Q
## 529	39.00	0	0	3101296	7.9250	<NA>	S
## 530	23.00	2	1	29104	11.5000	<NA>	S
## 535	30.00	0	0	315084	8.6625	<NA>	S
## 537	45.00	0	0	113050	26.5500	B38	S
## 539	NA	0	0	364498	14.5000	<NA>	S
## 543	11.00	4	2	347082	31.2750	<NA>	S
## 545	50.00	1	0	PC 17761	106.4250	C86	C
## 549	33.00	1	1	363291	20.5250	<NA>	S
## 553	NA	0	0	330979	7.8292	<NA>	Q
## 562	40.00	0	0	349251	7.8958	<NA>	S
## 563	28.00	0	0	218629	13.5000	<NA>	S
## 564	NA	0	0	SOTON/OQ 392082	8.0500	<NA>	S
## 565	NA	0	0	SOTON/O.Q. 392087	8.0500	<NA>	S
## 566	24.00	2	0	A/4 48871	24.1500	<NA>	S
## 569	NA	0	0	2686	7.2292	<NA>	C
## 576	19.00	0	0	358585	14.5000	<NA>	S
## 579	NA	1	0	2689	14.4583	<NA>	C
## 585	NA	0	0	3411	8.7125	<NA>	C
## 587	47.00	0	0	237565	15.0000	<NA>	S
## 589	22.00	0	0	14973	8.0500	<NA>	S
## 594	NA	0	2	364848	7.7500	<NA>	Q
## 595	37.00	1	0	SC/AH 29037	26.0000	<NA>	S
## 596	36.00	1	1	345773	24.1500	<NA>	S
## 599	NA	0	0	2664	7.2250	<NA>	C
## 602	NA	0	0	349214	7.8958	<NA>	S
## 604	44.00	0	0	364511	8.0500	<NA>	S
## 612	NA	0	0	SOTON/O.Q. 3101305	7.0500	<NA>	S
## 615	35.00	0	0	364512	8.0500	<NA>	S
## 617	34.00	1	1	347080	14.4000	<NA>	S
## 618	26.00	1	0	A/5. 3336	16.1000	<NA>	S
## 620	26.00	0	0	31028	10.5000	<NA>	S
## 621	27.00	1	0	2659	14.4542	<NA>	C
## 626	61.00	0	0	36963	32.3208	D50	S
## 627	57.00	0	0	219533	12.3500	<NA>	Q
## 629	26.00	0	0	349224	7.8958	<NA>	S
## 630	NA	0	0	334912	7.7333	<NA>	Q
## 632	51.00	0	0	347743	7.0542	<NA>	S
## 635	9.00	3	2	347088	27.9000	<NA>	S
## 638	31.00	1	1	C.A. 31921	26.2500	<NA>	S
## 639	41.00	0	5	3101295	39.6875	<NA>	S
## 640	NA	1	0	376564	16.1000	<NA>	S
## 641	20.00	0	0	350050	7.8542	<NA>	S
## 651	NA	0	0	349221	7.8958	<NA>	S
## 653	21.00	0	0	8475	8.4333	<NA>	S
## 655	18.00	0	0	365226	6.7500	<NA>	Q
## 656	24.00	2	0	S.O.C. 14879	73.5000	<NA>	S

## 657	NA	0	0	349223	7.8958	<NA>	S
## 658	32.00	1	1	364849	15.5000	<NA>	Q
## 659	23.00	0	0	29751	13.0000	<NA>	S
## 660	58.00	0	2	35273	113.2750	D48	C
## 663	47.00	0	0	5727	25.5875	E58	S
## 664	36.00	0	0	349210	7.4958	<NA>	S
## 666	32.00	2	0	S.O.C. 14879	73.5000	<NA>	S
## 667	25.00	0	0	234686	13.0000	<NA>	S
## 668	NA	0	0	312993	7.7750	<NA>	S
## 669	43.00	0	0	A/5 3536	8.0500	<NA>	S
## 672	31.00	1	0	F.C. 12750	52.0000	B71	S
## 673	70.00	0	0	C.A. 24580	10.5000	<NA>	S
## 676	18.00	0	0	349912	7.7750	<NA>	S
## 679	43.00	1	6	CA 2144	46.9000	<NA>	S
## 683	20.00	0	0	6563	9.2250	<NA>	S
## 687	14.00	4	1	3101295	39.6875	<NA>	S
## 688	19.00	0	0	349228	10.1708	<NA>	S
## 689	18.00	0	0	350036	7.7958	<NA>	S
## 694	25.00	0	0	2672	7.2250	<NA>	C
## 695	60.00	0	0	113800	26.5500	<NA>	S
## 696	52.00	0	0	248731	13.5000	<NA>	S
## 697	44.00	0	0	363592	8.0500	<NA>	S
## 699	49.00	1	1	17421	110.8833	C68	C
## 700	42.00	0	0	348121	7.6500	F G63	S
## 703	18.00	0	1	2691	14.4542	<NA>	C
## 705	26.00	1	0	350025	7.8542	<NA>	S
## 706	39.00	0	0	250655	26.0000	<NA>	S
## 712	NA	0	0	113028	26.5500	C124	S
## 714	29.00	0	0	7545	9.4833	<NA>	S
## 716	19.00	0	0	348124	7.6500	F G73	S
## 719	NA	0	0	36568	15.5000	<NA>	Q
## 720	33.00	0	0	347062	7.7750	<NA>	S
## 722	17.00	1	0	350048	7.0542	<NA>	S
## 723	34.00	0	0	12233	13.0000	<NA>	S
## 726	20.00	0	0	315094	8.6625	<NA>	S
## 729	25.00	1	0	236853	26.0000	<NA>	S
## 730	25.00	1	0	STON/O2. 3101271	7.9250	<NA>	S
## 732	11.00	0	0	2699	18.7875	<NA>	C
## 733	NA	0	0	239855	0.0000	<NA>	S
## 737	48.00	1	3	W./C. 6608	34.3750	<NA>	S
## 739	NA	0	0	349201	7.8958	<NA>	S
## 740	NA	0	0	349218	7.8958	<NA>	S
## 744	24.00	1	0	376566	16.1000	<NA>	S
## 746	70.00	1	1	WE/P 5735	71.0000	B22	S
## 747	16.00	1	1	C.A. 2673	20.2500	<NA>	S
## 749	19.00	1	0	113773	53.1000	D30	S
## 750	31.00	0	0	335097	7.7500	<NA>	Q
## 758	18.00	0	0	29108	11.5000	<NA>	S
## 759	34.00	0	0	363294	8.0500	<NA>	S
## 761	NA	0	0	358585	14.5000	<NA>	S
## 762	41.00	0	0	SOTON/O2 3101272	7.1250	<NA>	S
## 765	16.00	0	0	347074	7.7750	<NA>	S
## 767	NA	0	0	112379	39.6000	<NA>	C
## 768	30.50	0	0	364850	7.7500	<NA>	Q

## 769	NA	1	0	371110	24.1500	<NA>	Q
## 770	32.00	0	0	8471	8.3625	<NA>	S
## 771	24.00	0	0	345781	9.5000	<NA>	S
## 776	18.00	0	0	347078	7.7500	<NA>	S
## 777	NA	0	0	383121	7.7500	F38	Q
## 779	NA	0	0	36865	7.7375	<NA>	Q
## 783	29.00	0	0	113501	30.0000	D6	S
## 784	NA	1	2	W./C. 6607	23.4500	<NA>	S
## 788	8.00	4	1	382652	29.1250	<NA>	Q
## 790	46.00	0	0	PC 17593	79.2000	B82 B84	C
## 791	NA	0	0	12460	7.7500	<NA>	Q
## 792	16.00	0	0	239865	26.0000	<NA>	S
## 793	NA	8	2	CA. 2343	69.5500	<NA>	S
## 794	NA	0	0	PC 17600	30.6958	<NA>	C
## 795	25.00	0	0	349203	7.8958	<NA>	S
## 796	39.00	0	0	28213	13.0000	<NA>	S
## 799	30.00	0	0	2685	7.2292	<NA>	C
## 800	30.00	1	1	345773	24.1500	<NA>	S
## 801	34.00	0	0	250647	13.0000	<NA>	S
## 807	39.00	0	0	112050	0.0000	A36	S
## 808	18.00	0	0	347087	7.7750	<NA>	S
## 809	39.00	0	0	248723	13.0000	<NA>	S
## 812	39.00	0	0	A/4 48871	24.1500	<NA>	S
## 814	6.00	4	2	347082	31.2750	<NA>	S
## 816	NA	0	0	112058	0.0000	B102	S
## 817	23.00	0	0	STON/O2. 3101290	7.9250	<NA>	S
## 818	31.00	1	1	S.C./PARIS 2079	37.0042	<NA>	C
## 819	43.00	0	0	C 7075	6.4500	<NA>	S
## 820	10.00	3	2	347088	27.9000	<NA>	S
## 823	38.00	0	0	19972	0.0000	<NA>	S
## 825	2.00	4	1	3101295	39.6875	<NA>	S
## 826	NA	0	0	368323	6.9500	<NA>	Q
## 834	23.00	0	0	347468	7.8542	<NA>	S
## 837	21.00	0	0	315097	8.6625	<NA>	S
## 841	20.00	0	0	SOTON/O2 3101287	7.9250	<NA>	S
## 844	34.50	0	0	2683	6.4375	<NA>	C
## 845	17.00	0	0	315090	8.6625	<NA>	S
## 847	NA	8	2	CA. 2343	69.5500	<NA>	S
## 848	35.00	0	0	349213	7.8958	<NA>	C
## 849	28.00	0	1	248727	33.0000	<NA>	S
## 851	4.00	4	2	347082	31.2750	<NA>	S
## 852	74.00	0	0	347060	7.7750	<NA>	S
## 853	9.00	1	1	2678	15.2458	<NA>	C
## 855	44.00	1	0	244252	26.0000	<NA>	S
## 860	NA	0	0	2629	7.2292	<NA>	C
## 861	41.00	2	0	350026	14.1083	<NA>	S
## 862	21.00	1	0	28134	11.5000	<NA>	S
## 864	NA	8	2	CA. 2343	69.5500	<NA>	S
## 865	24.00	0	0	233866	13.0000	<NA>	S
## 868	31.00	0	0	PC 17590	50.4958	A24	S
## 874	47.00	0	0	345765	9.0000	<NA>	S
## 877	20.00	0	0	7534	9.8458	<NA>	S
## 878	19.00	0	0	349212	7.8958	<NA>	S
## 882	33.00	0	0	349257	7.8958	<NA>	S



## 883	22.00	0	0	7552	10.5167	<NA>	S
## 884	28.00	0	0	C.A./SOTON 34068	10.5000	<NA>	S
## 885	25.00	0	0	SOTON/OQ 392076	7.0500	<NA>	S
## 891	32.00	0	0	370376	7.7500	<NA>	Q
## 2	38.00	1	0	PC 17599	71.2833	C85	C
## 10	14.00	1	0	237736	30.0708	<NA>	C
## 16	55.00	0	0	248706	16.0000	<NA>	S
## 26	38.00	1	5	347077	31.3875	<NA>	S
## 32	NA	1	0	PC 17569	146.5208	B78	C
## 33	NA	0	0	335677	7.7500	<NA>	Q
## 37	NA	0	0	2677	7.2292	<NA>	C
## 44	3.00	1	2	SC/Paris 2123	41.5792	<NA>	C
## 45	19.00	0	0	330958	7.8792	<NA>	Q
## 48	NA	0	0	14311	7.7500	<NA>	Q
## 53	49.00	1	0	PC 17572	76.7292	D33	C
## 54	29.00	1	0	2926	26.0000	<NA>	S
## 56	NA	0	0	19947	35.5000	C52	S
## 59	5.00	1	2	C.A. 34651	27.7500	<NA>	S
## 62	38.00	0	0	113572	80.0000	B28	<NA>
## 67	29.00	0	0	C.A. 29395	10.5000	F33	S
## 69	17.00	4	2	3101281	7.9250	<NA>	S
## 75	32.00	0	0	1601	56.4958	<NA>	S
## 79	0.83	0	2	248738	29.0000	<NA>	S
## 80	30.00	0	0	364516	12.4750	<NA>	S
## 85	17.00	0	0	SO/C 14885	10.5000	<NA>	S
## 86	33.00	3	0	3101278	15.8500	<NA>	S
## 89	23.00	3	2	19950	263.0000	C23 C25 C27	S
## 108	NA	0	0	312991	7.7750	<NA>	S
## 110	NA	1	0	371110	24.1500	<NA>	Q
## 128	24.00	0	0	C 17369	7.1417	<NA>	S
## 129	NA	1	1	2668	22.3583	F E69	C
## 134	29.00	1	0	228414	26.0000	<NA>	S
## 137	19.00	0	2	11752	26.2833	D47	S
## 142	22.00	0	0	347081	7.7500	<NA>	S
## 143	24.00	1	0	STON/O2. 3101279	15.8500	<NA>	S
## 152	22.00	1	0	113776	66.6000	C2	S
## 162	40.00	0	0	C.A. 33595	15.7500	<NA>	S
## 167	NA	0	1	113505	55.0000	E33	S
## 184	1.00	2	1	230136	39.0000	F4	S
## 185	4.00	0	2	315153	22.0250	<NA>	S
## 187	NA	1	0	370365	15.5000	<NA>	Q
## 188	45.00	0	0	111428	26.5500	<NA>	S
## 193	19.00	1	0	350046	7.8542	<NA>	S
## 194	3.00	1	1	230080	26.0000	F2	S
## 195	44.00	0	0	PC 17610	27.7208	B4	C
## 196	58.00	0	0	PC 17569	146.5208	B80	C
## 199	NA	0	0	370370	7.7500	<NA>	Q
## 205	18.00	0	0	A/5 3540	8.0500	<NA>	S
## 208	26.00	0	0	2699	18.7875	<NA>	C
## 209	16.00	0	0	367231	7.7500	<NA>	Q
## 210	40.00	0	0	112277	31.0000	A31	C
## 212	35.00	0	0	F.C.C. 13528	21.0000	<NA>	S
## 217	27.00	0	0	STON/O2. 3101283	7.9250	<NA>	S
## 219	32.00	0	0	11813	76.2917	D15	C

## 227	19.00	0	0	SW/PP 751	10.5000	<NA>	S
## 234	5.00	4	2	347077	31.3875	<NA>	S
## 242	NA	1	0	367230	15.5000	<NA>	Q
## 249	37.00	1	1	11751	52.5542	D35	S
## 256	29.00	0	2	2650	15.2458	<NA>	C
## 257	NA	0	0	PC 17585	79.2000	<NA>	C
## 258	30.00	0	0	110152	86.5000	B77	S
## 259	35.00	0	0	PC 17755	512.3292	<NA>	C
## 260	50.00	0	1	230433	26.0000	<NA>	S
## 268	25.00	1	0	347083	7.7750	<NA>	S
## 269	58.00	0	1	PC 17582	153.4625	C125	S
## 270	35.00	0	0	PC 17760	135.6333	C99	S
## 272	25.00	0	0	LINE	0.0000	<NA>	S
## 273	41.00	0	1	250644	19.5000	<NA>	S
## 275	NA	0	0	370375	7.7500	<NA>	Q
## 284	19.00	0	0	A/5. 10482	8.0500	<NA>	S
## 289	42.00	0	0	237798	13.0000	<NA>	S
## 290	22.00	0	0	370373	7.7500	<NA>	Q
## 291	26.00	0	0	19877	78.8500	<NA>	S
## 292	19.00	1	0	11967	91.0792	B49	C
## 299	NA	0	0	19988	30.5000	C106	S
## 300	50.00	0	1	PC 17558	247.5208	B58 B60	C
## 301	NA	0	0	9234	7.7500	<NA>	Q
## 302	NA	2	0	367226	23.2500	<NA>	Q
## 304	NA	0	0	226593	12.3500	E101	Q
## 306	0.92	1	2	113781	151.5500	C22 C26	S
## 307	NA	0	0	17421	110.8833	<NA>	C
## 310	30.00	0	0	PC 17485	56.9292	E36	C
## 317	24.00	1	0	244367	26.0000	<NA>	S
## 319	31.00	0	2	36928	164.8667	C7	S
## 323	30.00	0	0	234818	12.3500	<NA>	Q
## 324	22.00	1	1	248738	29.0000	<NA>	S
## 326	36.00	0	0	PC 17760	135.6333	C32	C
## 328	36.00	0	0	28551	13.0000	D	S
## 329	31.00	1	1	363291	20.5250	<NA>	S
## 330	16.00	0	1	111361	57.9792	B18	C
## 331	NA	2	0	367226	23.2500	<NA>	Q
## 335	NA	1	0	PC 17611	133.6500	<NA>	S
## 338	41.00	0	0	16966	134.5000	E40	C
## 339	45.00	0	0	7598	8.0500	<NA>	S
## 342	24.00	3	2	19950	263.0000	C23 C25 C27	S
## 347	40.00	0	0	31418	13.0000	<NA>	S
## 348	NA	1	0	386525	16.1000	<NA>	S
## 349	3.00	1	1	C.A. 37671	15.9000	<NA>	S
## 357	22.00	0	1	113505	55.0000	E33	S
## 359	NA	0	0	330931	7.8792	<NA>	Q
## 367	60.00	1	0	110813	75.2500	D37	C
## 368	NA	0	0	2626	7.2292	<NA>	C
## 369	NA	0	0	14313	7.7500	<NA>	Q
## 370	24.00	0	0	PC 17477	69.3000	B35	C
## 371	25.00	1	0	11765	55.4417	E50	C
## 377	22.00	0	0	C 7077	7.2500	<NA>	S
## 382	1.00	0	2	2653	15.7417	<NA>	C
## 388	36.00	0	0	27849	13.0000	<NA>	S

## 390	17.00	0	0	SC 1748	12.0000	<NA>	C
## 401	39.00	0	0	STON/O 2. 3101289	7.9250	<NA>	S
## 413	33.00	1	0	19928	90.0000	C78	Q
## 417	34.00	1	1	28220	32.5000	<NA>	S
## 418	18.00	0	2	250652	13.0000	<NA>	S
## 427	28.00	1	0	2003	26.0000	<NA>	S
## 428	19.00	0	0	250655	26.0000	<NA>	S
## 430	32.00	0	0	SOTON/O.Q. 392078	8.0500	E10	S
## 431	28.00	0	0	110564	26.5500	C52	S
## 432	NA	1	0	376564	16.1000	<NA>	S
## 433	42.00	1	0	SC/AH 3085	26.0000	<NA>	S
## 438	24.00	2	3	29106	18.7500	<NA>	S
## 441	45.00	1	1	F.C.C. 13529	26.2500	<NA>	S
## 444	28.00	0	0	230434	13.0000	<NA>	S
## 445	NA	0	0	65306	8.1125	<NA>	S
## 446	4.00	0	2	33638	81.8583	A34	S
## 448	34.00	0	0	113794	26.5500	<NA>	S
## 454	49.00	1	0	17453	89.1042	C92	C
## 456	29.00	0	0	349240	7.8958	<NA>	C
## 458	NA	1	0	17464	51.8625	D21	S
## 461	48.00	0	0	19952	26.5500	E12	S
## 470	0.75	2	1	2666	19.2583	<NA>	C
## 473	33.00	1	2	C.A. 34651	27.7500	<NA>	S
## 474	23.00	0	0	SC/AH Basle 541	13.7917	D	C
## 487	35.00	1	0	19943	90.0000	C93	S
## 490	9.00	1	1	C.A. 37671	15.9000	<NA>	S
## 497	54.00	1	0	36947	78.2667	D20	C
## 505	16.00	0	0	110152	86.5000	B79	S
## 507	33.00	0	2	26360	26.0000	<NA>	S
## 508	NA	0	0	111427	26.5500	<NA>	S
## 510	26.00	0	0	1601	56.4958	<NA>	S
## 513	36.00	0	0	PC 17473	26.2875	E25	S
## 514	54.00	1	0	PC 17603	59.4000	<NA>	C
## 517	34.00	0	0	C.A. 34260	10.5000	F33	S
## 519	36.00	1	0	226875	26.0000	<NA>	S
## 521	30.00	0	0	12749	93.5000	B73	S
## 524	44.00	0	1	111361	57.9792	B18	C
## 527	50.00	0	0	W./C. 14258	10.5000	<NA>	S
## 531	2.00	1	1	26360	26.0000	<NA>	S
## 534	NA	0	2	2668	22.3583	<NA>	C
## 536	7.00	0	2	F.C.C. 13529	26.2500	<NA>	S
## 538	30.00	0	0	PC 17761	106.4250	<NA>	C
## 540	22.00	0	2	13568	49.5000	B39	C
## 541	36.00	0	2	WE/P 5735	71.0000	B22	S
## 544	32.00	1	0	2908	26.0000	<NA>	S
## 547	19.00	1	0	2908	26.0000	<NA>	S
## 551	17.00	0	2	17421	110.8833	C70	C
## 554	22.00	0	0	2620	7.2250	<NA>	C
## 555	22.00	0	0	347085	7.7750	<NA>	S
## 557	48.00	1	0	11755	39.6000	A16	C
## 559	39.00	1	1	110413	79.6500	E67	S
## 560	36.00	1	0	345572	17.4000	<NA>	S
## 570	32.00	0	0	350417	7.8542	<NA>	S
## 572	53.00	2	0	11769	51.4792	C101	S

## 573	36.00	0	0	PC 17474	26.3875	E25	S
## 574	NA	0	0	14312	7.7500	<NA>	Q
## 577	34.00	0	0	243880	13.0000	<NA>	S
## 578	39.00	1	0	13507	55.9000	E44	S
## 580	32.00	0	0	STON/O 2. 3101286	7.9250	<NA>	S
## 581	25.00	1	1	237789	30.0000	<NA>	S
## 586	18.00	0	2	110413	79.6500	E68	S
## 592	52.00	1	0	36947	78.2667	D20	C
## 597	NA	0	0	248727	33.0000	<NA>	S
## 600	49.00	1	0	PC 17485	56.9292	A20	C
## 605	35.00	0	0	111426	26.5500	<NA>	C
## 608	27.00	0	0	113804	30.5000	<NA>	S
## 613	NA	1	0	367230	15.5000	<NA>	Q
## 619	4.00	2	1	230136	39.0000	F4	S
## 622	42.00	1	0	11753	52.5542	D19	S
## 623	20.00	1	1	2653	15.7417	<NA>	C
## 631	80.00	0	0	27042	30.0000	A23	S
## 633	32.00	0	0	13214	30.5000	B50	C
## 636	28.00	0	0	237668	13.0000	<NA>	S
## 642	24.00	0	0	PC 17477	69.3000	B35	C
## 645	0.75	2	1	2666	19.2583	<NA>	C
## 646	48.00	1	0	PC 17572	76.7292	D33	C
## 650	23.00	0	0	CA. 2314	7.5500	<NA>	S
## 654	NA	0	0	330919	7.8292	<NA>	Q
## 665	20.00	1	0	STON/O 2. 3101285	7.9250	<NA>	S
## 671	40.00	1	1	29750	39.0000	<NA>	S
## 678	18.00	0	0	4138	9.8417	<NA>	S
## 690	15.00	0	1	24160	211.3375	B5	S
## 691	31.00	1	0	17474	57.0000	B20	S
## 692	4.00	0	1	349256	13.4167	<NA>	C
## 701	18.00	1	0	PC 17757	227.5250	C62 C64	C
## 702	35.00	0	0	PC 17475	26.2875	E24	S
## 707	45.00	0	0	223596	13.5000	<NA>	S
## 708	42.00	0	0	PC 17476	26.2875	E24	S
## 709	22.00	0	0	113781	151.5500	<NA>	S
## 710	NA	1	1	2661	15.2458	<NA>	C
## 717	38.00	0	0	PC 17757	227.5250	C45	C
## 718	27.00	0	0	34218	10.5000	E101	S
## 727	30.00	3	0	31027	21.0000	<NA>	S
## 731	29.00	0	0	24160	211.3375	B5	S
## 738	35.00	0	0	PC 17755	512.3292	B101	C
## 741	NA	0	0	16988	30.0000	D45	S
## 745	31.00	0	0	STON/O 2. 3101288	7.9250	<NA>	S
## 751	4.00	1	1	29103	23.0000	<NA>	S
## 752	6.00	0	1	392096	12.4750	E121	S
## 756	0.67	1	1	250649	14.5000	<NA>	S
## 760	33.00	0	0	110152	86.5000	B77	S
## 766	51.00	1	0	13502	77.9583	D11	S
## 775	54.00	1	3	29105	23.0000	<NA>	S
## 778	5.00	0	0	364516	12.4750	<NA>	S
## 782	17.00	1	0	17474	57.0000	B20	S
## 787	18.00	0	0	3101265	7.4958	<NA>	S
## 789	1.00	1	2	C.A. 2315	20.5750	<NA>	S
## 797	49.00	0	0	17465	25.9292	D17	S

##	802	31.00	1	1	C.A.	31921	26.2500	<NA>	S
##	804	0.42	0	1		2625	8.5167	<NA>	C
##	805	27.00	0	0		347089	6.9750	<NA>	S
##	810	33.00	1	0		113806	53.1000	E8	S
##	821	52.00	1	1		12749	93.5000	B69	S
##	822	27.00	0	0		315098	8.6625	<NA>	S
##	824	27.00	0	1		392096	12.4750	E121	S
##	828	1.00	0	2	S.C./PARIS	2079	37.0042	<NA>	C
##	830	62.00	0	0		113572	80.0000	B28	<NA>
##	831	15.00	1	0		2659	14.4542	<NA>	C
##	836	39.00	1	1	PC	17756	83.1583	E49	C
##	843	30.00	0	0		113798	31.0000	<NA>	C
##	850	NA	1	0		17453	89.1042	C92	C
##	854	16.00	0	1	PC	17592	39.4000	D28	S
##	856	18.00	0	1		392091	9.3500	<NA>	S
##	857	45.00	1	1		36928	164.8667	<NA>	S
##	858	51.00	0	0		113055	26.5500	E17	S
##	859	24.00	0	3		2666	19.2583	<NA>	C
##	866	42.00	0	0		236852	13.0000	<NA>	S
##	867	27.00	1	0	SC/PARIS	2149	13.8583	<NA>	C
##	870	4.00	1	1		347742	11.1333	<NA>	S
##	875	28.00	1	0	P/PP	3381	24.0000	<NA>	C
##	876	15.00	0	0		2667	7.2250	<NA>	C
##	880	56.00	0	1		11767	83.1583	C50	C
##	881	25.00	0	1		230433	26.0000	<NA>	S
##	888	19.00	0	0		112053	30.0000	B42	S
##	890	26.00	0	0		111369	30.0000	C148	C

titanic\_test

##	passenger_id	survived	pclass
##	3	Yes	3
##	4	Yes	1
##	5	No	3
##	8	No	3
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##	12	Yes	1
##	15	No	3
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##	22	Yes	2
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##	25	No	3
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##	29	Yes	3
##	31	No	1
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## 42	42	No	2
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## 203	203	No	3
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## 278	278	No	2
## 280	280	Yes	3
## 285	285	No	1
## 287	287	Yes	3
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## 294	294	No	3
## 298	298	No	1
## 308	308	Yes	1
## 311	311	Yes	1
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## 887	887	No	2
## 889	889	No	3

##	name
## 3	Heikkinen, Miss. Laina
## 4	Futrelle, Mrs. Jacques Heath (Lily May Peel)
## 5	Allen, Mr. William Henry
## 8	Palsson, Master. Gosta Leonard
## 9	Johnson, Mrs. Oscar W (Elisabeth Vilhelmina Berg)
## 11	Sandstrom, Miss. Marguerite Rut
## 12	Bonnell, Miss. Elizabeth
## 15	Vestrom, Miss. Hulda Amanda Adolfina
## 17	Rice, Master. Eugene
## 18	Williams, Mr. Charles Eugene
## 20	Masselmani, Mrs. Fatima
## 21	Fynney, Mr. Joseph J
## 22	Beesley, Mr. Lawrence
## 23	McGowan, Miss. Anna "Annie"
## 24	Sloper, Mr. William Thompson
## 25	Palsson, Miss. Torborg Danira
## 27	Emir, Mr. Farred Chehab
## 29	O'Dwyer, Miss. Ellen "Nellie"
## 31	Uruchurtu, Don. Manuel E
## 35	Meyer, Mr. Edgar Joseph
## 36	Holverson, Mr. Alexander Oskar
## 38	Cann, Mr. Ernest Charles
## 40	Nicola-Yarred, Miss. Jamila
## 42	Turpin, Mrs. William John Robert (Dorothy Ann Wonnacott)

## 43	Kraeff, Mr. Theodor
## 57	Rugg, Miss. Emily
## 63	Harris, Mr. Henry Birkhardt
## 64	Skoog, Master. Harald
## 66	Moubarek, Master. Gerios
## 73	Hood, Mr. Ambrose Jr
## 81	Waelens, Mr. Achille
## 82	Sheerlinck, Mr. Jan Baptist
## 83	McDermott, Miss. Brigdet Delia
## 87	Ford, Mr. William Neal
## 95	Coxon, Mr. Daniel
## 98	Greenfield, Mr. William Bertram
## 99	Doling, Mrs. John T (Ada Julia Bone)
## 102	Petroff, Mr. Pastcho ("Pentcho")
## 103	White, Mr. Richard Frasar
## 107	Salkjelsvik, Miss. Anna Kristine
## 111	Porter, Mr. Walter Chamberlain
## 114	Jussila, Miss. Katriina
## 117	Connors, Mr. Patrick
## 120	Andersson, Miss. Ellis Anna Maria
## 124	Webber, Miss. Susan
## 125	White, Mr. Percival Wayland
## 126	Nicola-Yarred, Master. Elias
## 130	Ekstrom, Mr. Johan
## 131	Drazenoic, Mr. Jozef
## 133	Robins, Mrs. Alexander A (Grace Charity Laury)
## 135	Sobey, Mr. Samuel James Hayden
## 136	Richard, Mr. Emile
## 138	Futrelle, Mr. Jacques Heath
## 139	Osen, Mr. Olaf Elon
## 147	Andersson, Mr. August Edvard ("Wennerstrom")
## 148	Ford, Miss. Robina Maggie "Ruby"
## 149	Navratil, Mr. Michel ("Louis M Hoffman")
## 157	Gilnagh, Miss. Katherine "Katie"
## 163	Bengtsson, Mr. John Viktor
## 165	Panula, Master. Eino Viljami
## 166	Goldsmith, Master. Frank John William "Frankie"
## 170	Ling, Mr. Lee
## 173	Johnson, Miss. Eleanor Ileen
## 177	Lefebvre, Master. Henry Forbes
## 183	Asplund, Master. Clarence Gustaf Hugo
## 186	Rood, Mr. Hugh Roscoe
## 189	Bourke, Mr. John
## 191	Pinsky, Mrs. (Rosa)
## 192	Carbines, Mr. William
## 198	Olsen, Mr. Karl Siegwart Andreas
## 200	Yrois, Miss. Henriette ("Mrs Harbeck")
## 203	Johanson, Mr. Jakob Alfred
## 211	Ali, Mr. Ahmed
## 213	Perkin, Mr. John Henry
## 216	Newell, Miss. Madeleine
## 221	Sunderland, Mr. Victor Francis
## 224	Nenkoff, Mr. Christo
## 225	Hoyt, Mr. Frederick Maxfield

## 231 Harris, Mrs. Henry Birkhardt (Irene Wallach)  
 ## 237 Hold, Mr. Stephen  
 ## 238 Collyer, Miss. Marjorie "Lottie"  
 ## 241 Zabour, Miss. Thamine  
 ## 248 Hamalainen, Mrs. William (Anna)  
 ## 252 Strom, Mrs. Wilhelm (Elna Matilda Persson)  
 ## 254 Lobb, Mr. William Arthur  
 ## 262 Asplund, Master. Edvin Rojj Felix  
 ## 263 Taussig, Mr. Emil  
 ## 276 Andrews, Miss. Kornelia Theodosia  
 ## 278 Parkes, Mr. Francis "Frank"  
 ## 280 Abbott, Mrs. Stanton (Rosa Hunt)  
 ## 285 Smith, Mr. Richard William  
 ## 287 de Mulder, Mr. Theodore  
 ## 293 Levy, Mr. Rene Jacques  
 ## 294 Haas, Miss. Aloisia  
 ## 298 Allison, Miss. Helen Loraine  
 ## 308 Penasco y Castellana, Mrs. Victor de Satode (Maria Josefa Perez de Soto y Vallejo)  
 ## 311 Hays, Miss. Margaret Bechstein  
 ## 312 Ryerson, Miss. Emily Borie  
 ## 316 Nilsson, Miss. Helmina Josefina  
 ## 320 Spedden, Mrs. Frederic Oakley (Margaretta Corning Stone)  
 ## 322 Danoff, Mr. Yoto  
 ## 341 Navratil, Master. Edmond Roger  
 ## 343 Collander, Mr. Erik Gustaf  
 ## 345 Fox, Mr. Stanley Hubert  
 ## 346 Brown, Miss. Amelia "Mildred"  
 ## 350 Dimic, Mr. Jovan  
 ## 355 Yousif, Mr. Wazli  
 ## 360 Mockler, Miss. Helen Mary "Ellie"  
 ## 361 Skoog, Mr. Wilhelm  
 ## 363 Barbara, Mrs. (Catherine David)  
 ## 365 O'Brien, Mr. Thomas  
 ## 376 Meyer, Mrs. Edgar Joseph (Leila Saks)  
 ## 380 Gustafsson, Mr. Karl Gideon  
 ## 381 Bidois, Miss. Rosalie  
 ## 384 Holverson, Mrs. Alexander Oskar (Mary Aline Towner)  
 ## 387 Goodwin, Master. Sidney Leonard  
 ## 391 Carter, Mr. William Ernest  
 ## 392 Jansson, Mr. Carl Olof  
 ## 393 Gustafsson, Mr. Johan Birger  
 ## 394 Newell, Miss. Marjorie  
 ## 395 Sandstrom, Mrs. Hjalmar (Agnes Charlotta Bengtsson)  
 ## 400 Trout, Mrs. William H (Jessie L)  
 ## 406 Gale, Mr. Shadrach  
 ## 407 Widegren, Mr. Carl/Charles Peter  
 ## 408 Richards, Master. William Rowe  
 ## 409 Birkeland, Mr. Hans Martin Monsen  
 ## 410 Lefebre, Miss. Ida  
 ## 411 Sdycoff, Mr. Todor  
 ## 415 Sundman, Mr. Johan Julian  
 ## 416 Meek, Mrs. Thomas (Annie Louise Rowley)  
 ## 422 Charters, Mr. David  
 ## 436 Carter, Miss. Lucile Polk

## 442	Hampe, Mr. Leon
## 447	Mellinger, Miss. Madeleine Violet
## 449	Baclini, Miss. Marie Catherine
## 450	Peuchen, Major. Arthur Godfrey
## 452	Hagland, Mr. Ingvald Olai Olsen
## 455	Peduzzi, Mr. Joseph
## 459	Toomey, Miss. Ellen
## 462	Morley, Mr. William
## 463	Gee, Mr. Arthur H
## 464	Milling, Mr. Jacob Christian
## 469	Scanlan, Mr. James
## 471	Keefe, Mr. Arthur
## 480	Hirvonen, Miss. Hildur E
## 481	Goodwin, Master. Harold Victor
## 484	Turkula, Mrs. (Hedwig)
## 485	Bishop, Mr. Dickinson H
## 486	Lefebvre, Miss. Jeannie
## 488	Kent, Mr. Edward Austin
## 492	Windelov, Mr. Einar
## 498	Shellard, Mr. Frederick William
## 501	Calic, Mr. Petar
## 506	Penasco y Castellana, Mr. Victor de Satode
## 511	Daly, Mr. Eugene Patrick
## 512	Webber, Mr. James
## 516	Walker, Mr. William Anderson
## 518	Ryan, Mr. Patrick
## 520	Pavlovic, Mr. Stefo
## 528	Farthing, Mr. John
## 532	Toufik, Mr. Nakli
## 533	Elias, Mr. Joseph Jr
## 542	Andersson, Miss. Ingeborg Constanzia
## 546	Nicholson, Mr. Arthur Ernest
## 548	Padro y Manent, Mr. Julian
## 550	Davies, Master. John Morgan Jr
## 552	Sharp, Mr. Percival James R
## 556	Wright, Mr. George
## 558	Robbins, Mr. Victor
## 561	Morrow, Mr. Thomas Rowan
## 567	Stoytcheff, Mr. Ilia
## 568	Palsson, Mrs. Nils (Alma Cornelia Berglund)
## 571	Harris, Mr. George
## 575	Rush, Mr. Alfred George John
## 582	Thayer, Mrs. John Borland (Marian Longstreth Morris)
## 583	Downton, Mr. William James
## 584	Ross, Mr. John Hugo
## 588	Frolicher-Stehli, Mr. Maxmillian
## 590	Murdlin, Mr. Joseph
## 591	Rintamaki, Mr. Matti
## 593	Elsbury, Mr. William James
## 598	Johnson, Mr. Alfred
## 601	Jacobsohn, Mrs. Sidney Samuel (Amy Frances Christy)
## 603	Harrington, Mr. Charles H
## 606	Lindell, Mr. Edvard Bengtsson
## 607	Karaic, Mr. Milan

## 609 Laroché, Mrs. Joseph (Juliette Marie Louise Lafargue)  
 ## 610 Shutes, Miss. Elizabeth W  
 ## 611 Andersson, Mrs. Anders Johan (Alfrida Konstantia Brogren)  
 ## 614 Horgan, Mr. John  
 ## 616 Herman, Miss. Alice  
 ## 624 Hansen, Mr. Henry Damsgaard  
 ## 625 Bowen, Mr. David John "Dai"  
 ## 628 Longley, Miss. Gretchen Fiske  
 ## 634 Parr, Mr. William Henry Marsh  
 ## 637 Leinonen, Mr. Antti Gustaf  
 ## 643 Skoog, Miss. Margit Elizabeth  
 ## 644 Foo, Mr. Choong  
 ## 647 Cor, Mr. Liudevit  
 ## 648 Simonius-Blumer, Col. Oberst Alfons  
 ## 649 Willey, Mr. Edward  
 ## 652 Doling, Miss. Elsie  
 ## 661 Frauenthal, Dr. Henry William  
 ## 662 Badt, Mr. Mohamed  
 ## 670 Taylor, Mrs. Elmer Zebley (Juliet Cummins Wright)  
 ## 674 Wilhelms, Mr. Charles  
 ## 675 Watson, Mr. Ennis Hastings  
 ## 677 Sawyer, Mr. Frederick Charles  
 ## 680 Cardeza, Mr. Thomas Drake Martinez  
 ## 681 Peters, Miss. Katie  
 ## 682 Hassab, Mr. Hammad  
 ## 684 Goodwin, Mr. Charles Edward  
 ## 685 Brown, Mr. Thomas William Solomon  
 ## 686 Laroché, Mr. Joseph Philippe Lemercier  
 ## 693 Lam, Mr. Ali  
 ## 698 Mullens, Miss. Katherine "Katie"  
 ## 704 Gallagher, Mr. Martin  
 ## 711 Mayne, Mlle. Berthe Antonine ("Mrs de Villiers")  
 ## 713 Taylor, Mr. Elmer Zebley  
 ## 715 Greenberg, Mr. Samuel  
 ## 721 Harper, Miss. Annie Jessie "Nina"  
 ## 724 Hodges, Mr. Henry Price  
 ## 725 Chambers, Mr. Norman Campbell  
 ## 728 Mannion, Miss. Margareth  
 ## 734 Berriman, Mr. William John  
 ## 735 Troupiansky, Mr. Moses Aaron  
 ## 736 Williams, Mr. Leslie  
 ## 742 Cavendish, Mr. Tyrell William  
 ## 743 Ryerson, Miss. Susan Parker "Suzette"  
 ## 748 Sinkkonen, Miss. Anna  
 ## 753 Vande Velde, Mr. Johannes Joseph  
 ## 754 Jonkoff, Mr. Lelio  
 ## 755 Herman, Mrs. Samuel (Jane Laver)  
 ## 757 Carlsson, Mr. August Sigfrid  
 ## 763 Barah, Mr. Hanna Assi  
 ## 764 Carter, Mrs. William Ernest (Lucile Polk)  
 ## 772 Jensen, Mr. Niels Peder  
 ## 773 Mack, Mrs. (Mary)  
 ## 774 Elias, Mr. Dibo  
 ## 780 Robert, Mrs. Edward Scott (Elisabeth Walton McMillan)

## 781		Ayoub, Miss. Banoura						
## 785		Ali, Mr. William						
## 786		Harmer, Mr. Abraham (David Lishin)						
## 798		Osman, Mrs. Mara						
## 803		Carter, Master. William Thornton II						
## 806		Johansson, Mr. Karl Johan						
## 811		Alexander, Mr. William						
## 813		Slemen, Mr. Richard James						
## 815		Tomlin, Mr. Ernest Portage						
## 827		Lam, Mr. Len						
## 829		McCormack, Mr. Thomas Joseph						
## 832		Richards, Master. George Sibley						
## 833		Saad, Mr. Amin						
## 835		Allum, Mr. Owen George						
## 838		Sirota, Mr. Maurice						
## 839		Chip, Mr. Chang						
## 840		Marechal, Mr. Pierre						
## 842		Mudd, Mr. Thomas Charles						
## 846		Abbing, Mr. Anthony						
## 863		Swift, Mrs. Frederick Joel (Margaret Welles Barron)						
## 869		van Melkebeke, Mr. Philemon						
## 871		Balkic, Mr. Cerin						
## 872		Beckwith, Mrs. Richard Leonard (Sallie Monypeny)						
## 873		Carlsson, Mr. Frans Olof						
## 879		Laleff, Mr. Kristo						
## 886		Rice, Mrs. William (Margaret Norton)						
## 887		Montvila, Rev. Juozas						
## 889		Johnston, Miss. Catherine Helen "Carrie"						
##	sex	age	sib_sp	parch		ticket	fare	cabin
## 3	female	26.00	0	0	STON/O2.	3101282	7.9250	<NA>
## 4	female	35.00	1	0		113803	53.1000	C123
## 5	male	35.00	0	0		373450	8.0500	<NA>
## 8	male	2.00	3	1		349909	21.0750	<NA>
## 9	female	27.00	0	2		347742	11.1333	<NA>
## 11	female	4.00	1	1	PP	9549	16.7000	G6
## 12	female	58.00	0	0		113783	26.5500	C103
## 15	female	14.00	0	0		350406	7.8542	<NA>
## 17	male	2.00	4	1		382652	29.1250	<NA>
## 18	male	NA	0	0		244373	13.0000	<NA>
## 20	female	NA	0	0		2649	7.2250	<NA>
## 21	male	35.00	0	0		239865	26.0000	<NA>
## 22	male	34.00	0	0		248698	13.0000	D56
## 23	female	15.00	0	0		330923	8.0292	<NA>
## 24	male	28.00	0	0		113788	35.5000	A6
## 25	female	8.00	3	1		349909	21.0750	<NA>
## 27	male	NA	0	0		2631	7.2250	<NA>
## 29	female	NA	0	0		330959	7.8792	<NA>
## 31	male	40.00	0	0	PC	17601	27.7208	<NA>
## 35	male	28.00	1	0	PC	17604	82.1708	<NA>
## 36	male	42.00	1	0		113789	52.0000	<NA>
## 38	male	21.00	0	0	A./5.	2152	8.0500	<NA>
## 40	female	14.00	1	0		2651	11.2417	<NA>
## 42	female	27.00	1	0		11668	21.0000	<NA>
## 43	male	NA	0	0		349253	7.8958	<NA>

## 57	female	21.00	0	0	C.A. 31026	10.5000	<NA>
## 63	male	45.00	1	0	36973	83.4750	C83
## 64	male	4.00	3	2	347088	27.9000	<NA>
## 66	male	NA	1	1	2661	15.2458	<NA>
## 73	male	21.00	0	0	S.O.C. 14879	73.5000	<NA>
## 81	male	22.00	0	0	345767	9.0000	<NA>
## 82	male	29.00	0	0	345779	9.5000	<NA>
## 83	female	NA	0	0	330932	7.7875	<NA>
## 87	male	16.00	1	3	W./C. 6608	34.3750	<NA>
## 95	male	59.00	0	0	364500	7.2500	<NA>
## 98	male	23.00	0	1	PC 17759	63.3583	D10 D12
## 99	female	34.00	0	1	231919	23.0000	<NA>
## 102	male	NA	0	0	349215	7.8958	<NA>
## 103	male	21.00	0	1	35281	77.2875	D26
## 107	female	21.00	0	0	343120	7.6500	<NA>
## 111	male	47.00	0	0	110465	52.0000	C110
## 114	female	20.00	1	0	4136	9.8250	<NA>
## 117	male	70.50	0	0	370369	7.7500	<NA>
## 120	female	2.00	4	2	347082	31.2750	<NA>
## 124	female	32.50	0	0	27267	13.0000	E101
## 125	male	54.00	0	1	35281	77.2875	D26
## 126	male	12.00	1	0	2651	11.2417	<NA>
## 130	male	45.00	0	0	347061	6.9750	<NA>
## 131	male	33.00	0	0	349241	7.8958	<NA>
## 133	female	47.00	1	0	A/5. 3337	14.5000	<NA>
## 135	male	25.00	0	0	C.A. 29178	13.0000	<NA>
## 136	male	23.00	0	0	SC/PARIS 2133	15.0458	<NA>
## 138	male	37.00	1	0	113803	53.1000	C123
## 139	male	16.00	0	0	7534	9.2167	<NA>
## 147	male	27.00	0	0	350043	7.7958	<NA>
## 148	female	9.00	2	2	W./C. 6608	34.3750	<NA>
## 149	male	36.50	0	2	230080	26.0000	F2
## 157	female	16.00	0	0	35851	7.7333	<NA>
## 163	male	26.00	0	0	347068	7.7750	<NA>
## 165	male	1.00	4	1	3101295	39.6875	<NA>
## 166	male	9.00	0	2	363291	20.5250	<NA>
## 170	male	28.00	0	0	1601	56.4958	<NA>
## 173	female	1.00	1	1	347742	11.1333	<NA>
## 177	male	NA	3	1	4133	25.4667	<NA>
## 183	male	9.00	4	2	347077	31.3875	<NA>
## 186	male	NA	0	0	113767	50.0000	A32
## 189	male	40.00	1	1	364849	15.5000	<NA>
## 191	female	32.00	0	0	234604	13.0000	<NA>
## 192	male	19.00	0	0	28424	13.0000	<NA>
## 198	male	42.00	0	1	4579	8.4042	<NA>
## 200	female	24.00	0	0	248747	13.0000	<NA>
## 203	male	34.00	0	0	3101264	6.4958	<NA>
## 211	male	24.00	0	0	SOTON/O.Q. 3101311	7.0500	<NA>
## 213	male	22.00	0	0	A/5 21174	7.2500	<NA>
## 216	female	31.00	1	0	35273	113.2750	D36
## 221	male	16.00	0	0	SOTON/OQ 392089	8.0500	<NA>
## 224	male	NA	0	0	349234	7.8958	<NA>
## 225	male	38.00	1	0	19943	90.0000	C93
## 231	female	35.00	1	0	36973	83.4750	C83



## 237	male	44.00	1	0	26707	26.0000	<NA>
## 238	female	8.00	0	2	C.A. 31921	26.2500	<NA>
## 241	female	NA	1	0	2665	14.4542	<NA>
## 248	female	24.00	0	2	250649	14.5000	<NA>
## 252	female	29.00	1	1	347054	10.4625	G6
## 254	male	30.00	1	0	A/5. 3336	16.1000	<NA>
## 262	male	3.00	4	2	347077	31.3875	<NA>
## 263	male	52.00	1	1	110413	79.6500	E67
## 276	female	63.00	1	0	13502	77.9583	D7
## 278	male	NA	0	0	239853	0.0000	<NA>
## 280	female	35.00	1	1	C.A. 2673	20.2500	<NA>
## 285	male	NA	0	0	113056	26.0000	A19
## 287	male	30.00	0	0	345774	9.5000	<NA>
## 293	male	36.00	0	0	SC/Paris 2163	12.8750	D
## 294	female	24.00	0	0	349236	8.8500	<NA>
## 298	female	2.00	1	2	113781	151.5500	C22 C26
## 308	female	17.00	1	0	PC 17758	108.9000	C65
## 311	female	24.00	0	0	11767	83.1583	C54
## 312	female	18.00	2	2	PC 17608	262.3750	B57 B59 B63 B66
## 316	female	26.00	0	0	347470	7.8542	<NA>
## 320	female	40.00	1	1	16966	134.5000	E34
## 322	male	27.00	0	0	349219	7.8958	<NA>
## 341	male	2.00	1	1	230080	26.0000	F2
## 343	male	28.00	0	0	248740	13.0000	<NA>
## 345	male	36.00	0	0	229236	13.0000	<NA>
## 346	female	24.00	0	0	248733	13.0000	F33
## 350	male	42.00	0	0	315088	8.6625	<NA>
## 355	male	NA	0	0	2647	7.2250	<NA>
## 360	female	NA	0	0	330980	7.8792	<NA>
## 361	male	40.00	1	4	347088	27.9000	<NA>
## 363	female	45.00	0	1	2691	14.4542	<NA>
## 365	male	NA	1	0	370365	15.5000	<NA>
## 376	female	NA	1	0	PC 17604	82.1708	<NA>
## 380	male	19.00	0	0	347069	7.7750	<NA>
## 381	female	42.00	0	0	PC 17757	227.5250	<NA>
## 384	female	35.00	1	0	113789	52.0000	<NA>
## 387	male	1.00	5	2	CA 2144	46.9000	<NA>
## 391	male	36.00	1	2	113760	120.0000	B96 B98
## 392	male	21.00	0	0	350034	7.7958	<NA>
## 393	male	28.00	2	0	3101277	7.9250	<NA>
## 394	female	23.00	1	0	35273	113.2750	D36
## 395	female	24.00	0	2	PP 9549	16.7000	G6
## 400	female	28.00	0	0	240929	12.6500	<NA>
## 406	male	34.00	1	0	28664	21.0000	<NA>
## 407	male	51.00	0	0	347064	7.7500	<NA>
## 408	male	3.00	1	1	29106	18.7500	<NA>
## 409	male	21.00	0	0	312992	7.7750	<NA>
## 410	female	NA	3	1	4133	25.4667	<NA>
## 411	male	NA	0	0	349222	7.8958	<NA>
## 415	male	44.00	0	0	STON/O 2. 3101269	7.9250	<NA>
## 416	female	NA	0	0	343095	8.0500	<NA>
## 422	male	21.00	0	0	A/5. 13032	7.7333	<NA>
## 436	female	14.00	1	2	113760	120.0000	B96 B98
## 442	male	20.00	0	0	345769	9.5000	<NA>

## 447 female	13.00	0	1	250644	19.5000	<NA>
## 449 female	5.00	2	1	2666	19.2583	<NA>
## 450 male	52.00	0	0	113786	30.5000	C104
## 452 male	NA	1	0	65303	19.9667	<NA>
## 455 male	NA	0	0	A/5 2817	8.0500	<NA>
## 459 female	50.00	0	0	F.C.C. 13531	10.5000	<NA>
## 462 male	34.00	0	0	364506	8.0500	<NA>
## 463 male	47.00	0	0	111320	38.5000	E63
## 464 male	48.00	0	0	234360	13.0000	<NA>
## 469 male	NA	0	0	36209	7.7250	<NA>
## 471 male	NA	0	0	323592	7.2500	<NA>
## 480 female	2.00	0	1	3101298	12.2875	<NA>
## 481 male	9.00	5	2	CA 2144	46.9000	<NA>
## 484 female	63.00	0	0	4134	9.5875	<NA>
## 485 male	25.00	1	0	11967	91.0792	B49
## 486 female	NA	3	1	4133	25.4667	<NA>
## 488 male	58.00	0	0	11771	29.7000	B37
## 492 male	21.00	0	0	SOTON/OQ 3101317	7.2500	<NA>
## 498 male	NA	0	0	C.A. 6212	15.1000	<NA>
## 501 male	17.00	0	0	315086	8.6625	<NA>
## 506 male	18.00	1	0	PC 17758	108.9000	C65
## 511 male	29.00	0	0	382651	7.7500	<NA>
## 512 male	NA	0	0	SOTON/OQ 3101316	8.0500	<NA>
## 516 male	47.00	0	0	36967	34.0208	D46
## 518 male	NA	0	0	371110	24.1500	<NA>
## 520 male	32.00	0	0	349242	7.8958	<NA>
## 528 male	NA	0	0	PC 17483	221.7792	C95
## 532 male	NA	0	0	2641	7.2292	<NA>
## 533 male	17.00	1	1	2690	7.2292	<NA>
## 542 female	9.00	4	2	347082	31.2750	<NA>
## 546 male	64.00	0	0	693	26.0000	<NA>
## 548 male	NA	0	0	SC/PARIS 2146	13.8625	<NA>
## 550 male	8.00	1	1	C.A. 33112	36.7500	<NA>
## 552 male	27.00	0	0	244358	26.0000	<NA>
## 556 male	62.00	0	0	113807	26.5500	<NA>
## 558 male	NA	0	0	PC 17757	227.5250	<NA>
## 561 male	NA	0	0	372622	7.7500	<NA>
## 567 male	19.00	0	0	349205	7.8958	<NA>
## 568 female	29.00	0	4	349909	21.0750	<NA>
## 571 male	62.00	0	0	S.W./PP 752	10.5000	<NA>
## 575 male	16.00	0	0	A/4. 20589	8.0500	<NA>
## 582 female	39.00	1	1	17421	110.8833	C68
## 583 male	54.00	0	0	28403	26.0000	<NA>
## 584 male	36.00	0	0	13049	40.1250	A10
## 588 male	60.00	1	1	13567	79.2000	B41
## 590 male	NA	0	0	A./5. 3235	8.0500	<NA>
## 591 male	35.00	0	0	STON/O 2. 3101273	7.1250	<NA>
## 593 male	47.00	0	0	A/5 3902	7.2500	<NA>
## 598 male	49.00	0	0	LINE	0.0000	<NA>
## 601 female	24.00	2	1	243847	27.0000	<NA>
## 603 male	NA	0	0	113796	42.4000	<NA>
## 606 male	36.00	1	0	349910	15.5500	<NA>
## 607 male	30.00	0	0	349246	7.8958	<NA>
## 609 female	22.00	1	2	SC/Paris 2123	41.5792	<NA>

## 610 female 40.00	0	0	PC 17582	153.4625	C125
## 611 female 39.00	1	5	347082	31.2750	<NA>
## 614 male NA	0	0	370377	7.7500	<NA>
## 616 female 24.00	1	2	220845	65.0000	<NA>
## 624 male 21.00	0	0	350029	7.8542	<NA>
## 625 male 21.00	0	0	54636	16.1000	<NA>
## 628 female 21.00	0	0	13502	77.9583	D9
## 634 male NA	0	0	112052	0.0000	<NA>
## 637 male 32.00	0	0	STON/O 2. 3101292	7.9250	<NA>
## 643 female 2.00	3	2	347088	27.9000	<NA>
## 644 male NA	0	0	1601	56.4958	<NA>
## 647 male 19.00	0	0	349231	7.8958	<NA>
## 648 male 56.00	0	0	13213	35.5000	A26
## 649 male NA	0	0	S.O./P.P. 751	7.5500	<NA>
## 652 female 18.00	0	1	231919	23.0000	<NA>
## 661 male 50.00	2	0	PC 17611	133.6500	<NA>
## 662 male 40.00	0	0	2623	7.2250	<NA>
## 670 female NA	1	0	19996	52.0000	C126
## 674 male 31.00	0	0	244270	13.0000	<NA>
## 675 male NA	0	0	239856	0.0000	<NA>
## 677 male 24.50	0	0	342826	8.0500	<NA>
## 680 male 36.00	0	1	PC 17755	512.3292	B51 B53 B55
## 681 female NA	0	0	330935	8.1375	<NA>
## 682 male 27.00	0	0	PC 17572	76.7292	D49
## 684 male 14.00	5	2	CA 2144	46.9000	<NA>
## 685 male 60.00	1	1	29750	39.0000	<NA>
## 686 male 25.00	1	2	SC/Paris 2123	41.5792	<NA>
## 693 male NA	0	0	1601	56.4958	<NA>
## 698 female NA	0	0	35852	7.7333	<NA>
## 704 male 25.00	0	0	36864	7.7417	<NA>
## 711 female 24.00	0	0	PC 17482	49.5042	C90
## 713 male 48.00	1	0	19996	52.0000	C126
## 715 male 52.00	0	0	250647	13.0000	<NA>
## 721 female 6.00	0	1	248727	33.0000	<NA>
## 724 male 50.00	0	0	250643	13.0000	<NA>
## 725 male 27.00	1	0	113806	53.1000	E8
## 728 female NA	0	0	36866	7.7375	<NA>
## 734 male 23.00	0	0	28425	13.0000	<NA>
## 735 male 23.00	0	0	233639	13.0000	<NA>
## 736 male 28.50	0	0	54636	16.1000	<NA>
## 742 male 36.00	1	0	19877	78.8500	C46
## 743 female 21.00	2	2	PC 17608	262.3750	B57 B59 B63 B66
## 748 female 30.00	0	0	250648	13.0000	<NA>
## 753 male 33.00	0	0	345780	9.5000	<NA>
## 754 male 23.00	0	0	349204	7.8958	<NA>
## 755 female 48.00	1	2	220845	65.0000	<NA>
## 757 male 28.00	0	0	350042	7.7958	<NA>
## 763 male 20.00	0	0	2663	7.2292	<NA>
## 764 female 36.00	1	2	113760	120.0000	B96 B98
## 772 male 48.00	0	0	350047	7.8542	<NA>
## 773 female 57.00	0	0	S.O./P.P. 3	10.5000	E77
## 774 male NA	0	0	2674	7.2250	<NA>
## 780 female 43.00	0	1	24160	211.3375	B3
## 781 female 13.00	0	0	2687	7.2292	<NA>

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## 798	female	31.00	0	0	349244	8.6833	<NA>
## 803	male	11.00	1	2	113760	120.0000	B96 B98
## 806	male	31.00	0	0	347063	7.7750	<NA>
## 811	male	26.00	0	0	3474	7.8875	<NA>
## 813	male	35.00	0	0	28206	10.5000	<NA>
## 815	male	30.50	0	0	364499	8.0500	<NA>
## 827	male	NA	0	0	1601	56.4958	<NA>
## 829	male	NA	0	0	367228	7.7500	<NA>
## 832	male	0.83	1	1	29106	18.7500	<NA>
## 833	male	NA	0	0	2671	7.2292	<NA>
## 835	male	18.00	0	0	2223	8.3000	<NA>
## 838	male	NA	0	0	392092	8.0500	<NA>
## 839	male	32.00	0	0	1601	56.4958	<NA>
## 840	male	NA	0	0	11774	29.7000	C47
## 842	male	16.00	0	0	S.O./P.P. 3	10.5000	<NA>
## 846	male	42.00	0	0	C.A. 5547	7.5500	<NA>
## 863	female	48.00	0	0	17466	25.9292	D17
## 869	male	NA	0	0	345777	9.5000	<NA>
## 871	male	26.00	0	0	349248	7.8958	<NA>
## 872	female	47.00	1	1	11751	52.5542	D35
## 873	male	33.00	0	0	695	5.0000	B51 B53 B55
## 879	male	NA	0	0	349217	7.8958	<NA>
## 886	female	39.00	0	5	382652	29.1250	<NA>
## 887	male	27.00	0	0	211536	13.0000	<NA>
## 889	female	NA	1	2	W./C. 6607	23.4500	<NA>
##	embarked						
## 3	S						
## 4	S						
## 5	S						
## 8	S						
## 9	S						
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## 17	Q						
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## 20	C						
## 21	S						
## 22	S						
## 23	Q						
## 24	S						
## 25	S						
## 27	C						
## 29	Q						
## 31	C						
## 35	C						
## 36	S						
## 38	S						
## 40	C						
## 42	S						
## 43	C						
## 57	S						

## 63	S
## 64	S
## 66	C
## 73	S
## 81	S
## 82	S
## 83	Q
## 87	S
## 95	S
## 98	C
## 99	S
## 102	S
## 103	S
## 107	S
## 111	S
## 114	S
## 117	Q
## 120	S
## 124	S
## 125	S
## 126	C
## 130	S
## 131	C
## 133	S
## 135	S
## 136	C
## 138	S
## 139	S
## 147	S
## 148	S
## 149	S
## 157	Q
## 163	S
## 165	S
## 166	S
## 170	S
## 173	S
## 177	S
## 183	S
## 186	S
## 189	Q
## 191	S
## 192	S
## 198	S
## 200	S
## 203	S
## 211	S
## 213	S
## 216	C
## 221	S
## 224	S
## 225	S
## 231	S
## 237	S

## 238	S
## 241	C
## 248	S
## 252	S
## 254	S
## 262	S
## 263	S
## 276	S
## 278	S
## 280	S
## 285	S
## 287	S
## 293	C
## 294	S
## 298	S
## 308	C
## 311	C
## 312	C
## 316	S
## 320	C
## 322	S
## 341	S
## 343	S
## 345	S
## 346	S
## 350	S
## 355	C
## 360	Q
## 361	S
## 363	C
## 365	Q
## 376	C
## 380	S
## 381	C
## 384	S
## 387	S
## 391	S
## 392	S
## 393	S
## 394	C
## 395	S
## 400	S
## 406	S
## 407	S
## 408	S
## 409	S
## 410	S
## 411	S
## 415	S
## 416	S
## 422	Q
## 436	S
## 442	S
## 447	S

## 449	C
## 450	S
## 452	S
## 455	S
## 459	S
## 462	S
## 463	S
## 464	S
## 469	Q
## 471	S
## 480	S
## 481	S
## 484	S
## 485	C
## 486	S
## 488	C
## 492	S
## 498	S
## 501	S
## 506	C
## 511	Q
## 512	S
## 516	S
## 518	Q
## 520	S
## 528	S
## 532	C
## 533	C
## 542	S
## 546	S
## 548	C
## 550	S
## 552	S
## 556	S
## 558	C
## 561	Q
## 567	S
## 568	S
## 571	S
## 575	S
## 582	C
## 583	S
## 584	C
## 588	C
## 590	S
## 591	S
## 593	S
## 598	S
## 601	S
## 603	S
## 606	S
## 607	S
## 609	C
## 610	S

## 611	S
## 614	Q
## 616	S
## 624	S
## 625	S
## 628	S
## 634	S
## 637	S
## 643	S
## 644	S
## 647	S
## 648	C
## 649	S
## 652	S
## 661	S
## 662	C
## 670	S
## 674	S
## 675	S
## 677	S
## 680	C
## 681	Q
## 682	C
## 684	S
## 685	S
## 686	C
## 693	S
## 698	Q
## 704	Q
## 711	C
## 713	S
## 715	S
## 721	S
## 724	S
## 725	S
## 728	Q
## 734	S
## 735	S
## 736	S
## 742	S
## 743	C
## 748	S
## 753	S
## 754	S
## 755	S
## 757	S
## 763	C
## 764	S
## 772	S
## 773	S
## 774	C
## 780	S
## 781	C
## 785	S

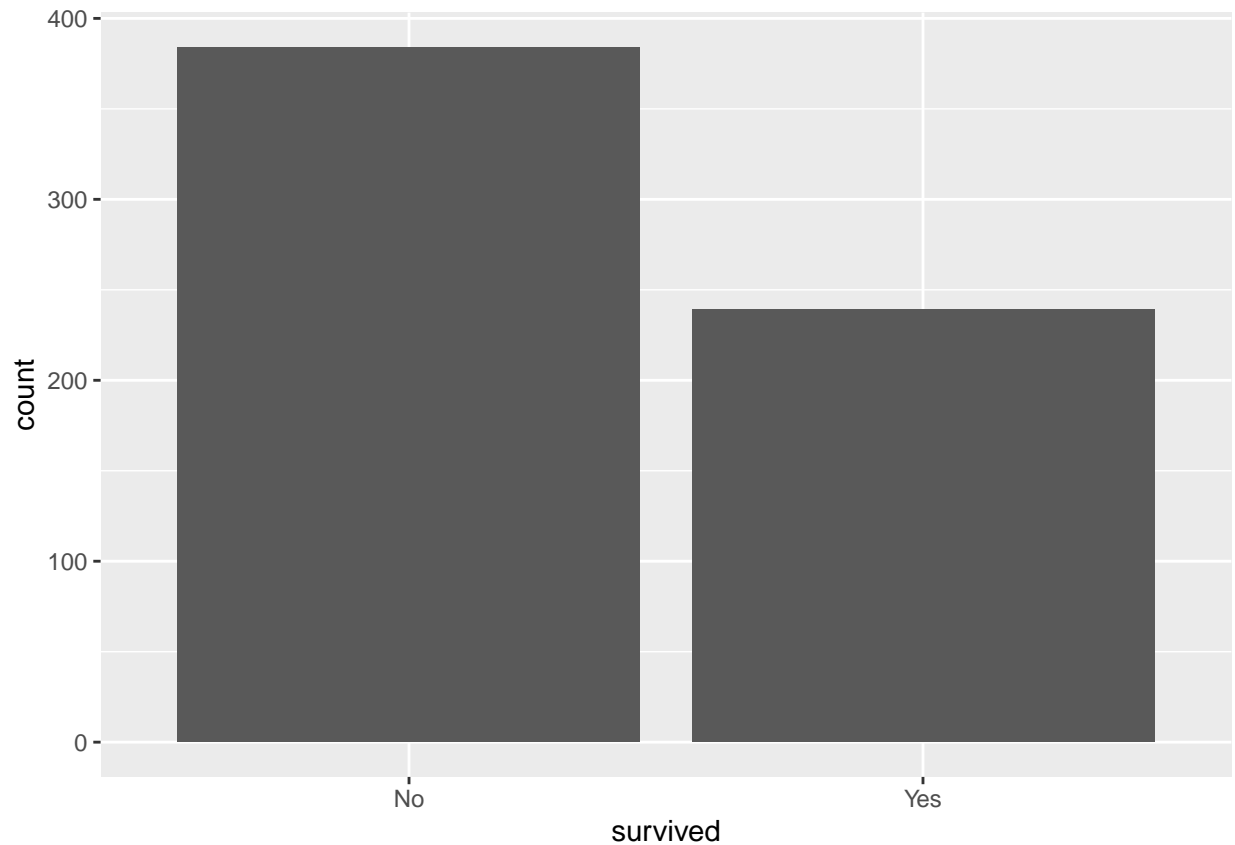


```
## 786      S
## 798      S
## 803      S
## 806      S
## 811      S
## 813      S
## 815      S
## 827      S
## 829      Q
## 832      S
## 833      C
## 835      S
## 838      S
## 839      S
## 840      C
## 842      S
## 846      S
## 863      S
## 869      S
## 871      S
## 872      S
## 873      S
## 879      S
## 886      Q
## 887      S
## 889      S
```

## Question 2

Using the **training** data set, explore/describe the distribution of the outcome variable **survived**.

```
titanic_train %>%
  ggplot(aes( x = survived )) +
  geom_bar()
```



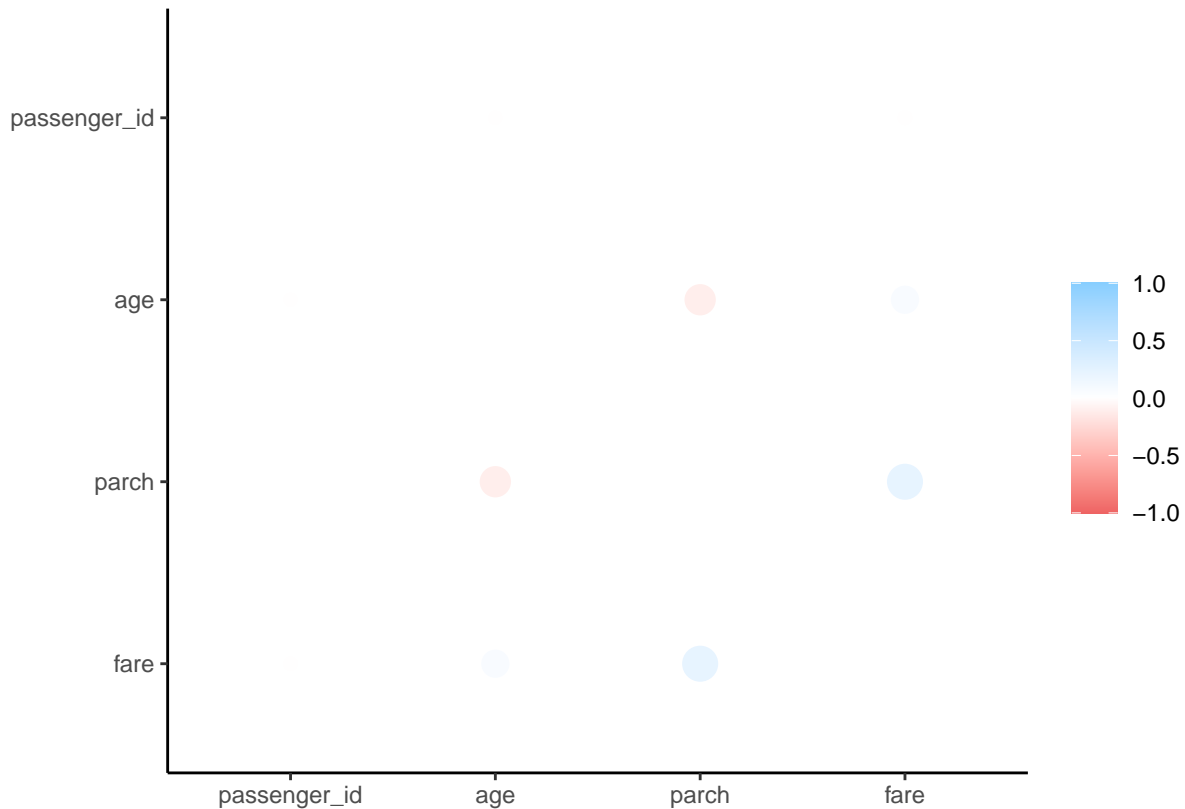
The outcome variable “survived” has two categories, “Yes” and “No”. Here, there are more “No” variables than the “Yes” variables. The total number of variables seems to be approximately over 600.

### Question 3

Using the **training** data set, create a correlation matrix of all continuous variables. Create a visualization of the matrix, and describe any patterns you see. Are any predictors correlated with each other? Which ones, and in which direction?

Yes there are predictors correlated with each other. The age and parch predictors are negatively correlated to each other, and the parch and fare predictors are positively correlated to each other.

```
cor_titanic <- titanic_train %>%  
  select(-survived, -pclass, -name, -sex, -sib_sp, -ticket, -cabin, -embarked) %>%  
  cor(use = "pairwise.complete.obs", method = "pearson")  
rplot(cor_titanic)
```



#### Question 4

Using the **training** data, create a recipe predicting the outcome variable **survived**. Include the following predictors: ticket class, sex, age, number of siblings or spouses aboard, number of parents or children aboard, and passenger fare.

Recall that there were missing values for **age**. To deal with this, add an imputation step using **step\_impute\_linear()**. Next, use **step\_dummy()** to **dummy** encode categorical predictors. Finally, include interactions between:

- Sex and passenger fare, and
- Age and passenger fare.

You'll need to investigate the **tidymodels** documentation to find the appropriate step functions to use.

```
library(modeldata)
titanic_recipe <- recipe(survived ~ pclass+ sex + age + sib_sp + parch + fare, data = titanic_train) %>%
  step_impute_linear(age) %>%
  step_dummy(all_nominal_predictors()) %>%
  prep()

int_mod_2 <- titanic_recipe %>%
  step_dummy(sex, age) %>%
  step_interact(terms = ~ fare)
tidy(int_mod_2, number = 1)
```

```
## # A tibble: 1 x 3
##   terms model id
##   <chr> <list> <chr>
## 1 age   <lm>   impute_linear_6xWiy
```

### Question 5

Specify a **logistic regression** model for classification using the "glm" engine. Then create a workflow. Add your model and the appropriate recipe. Finally, use `fit()` to apply your workflow to the **training** data.

*Hint: Make sure to store the results of `fit()`. You'll need them later on.*

```
log_reg <- logistic_reg() %>%
  set_engine("glm") %>%
  set_mode("classification")

log_wf <- workflow() %>%
  add_model(log_reg) %>%
  add_recipe(titanic_recipe)

log_fit <- fit(log_wf, titanic_train)

log_fit %>%
  tidy()
```

```
## # A tibble: 6 x 5
##   term      estimate std.error statistic  p.value
##   <chr>      <dbl>    <dbl>    <dbl>    <dbl>
## 1 (Intercept)  3.36      0.568      5.92 3.29e- 9
## 2 pclass     -1.12      0.155     -7.22 5.12e-13
## 3 age       -0.0462    0.00864    -5.35 8.85e- 8
## 4 sib_sp     -0.272    0.0968     -2.81 4.94e- 3
## 5 parch       0.244    0.128      1.91 5.61e- 2
## 6 fare       0.00346  0.00288     1.20 2.29e- 1
```

### Question 6

Repeat **Question 5**, but this time specify a linear discriminant analysis model for classification using the "MASS" engine.

```
lda_mod <- discrim_linear() %>%
  set_mode("classification") %>%
  set_engine("MASS")

lda_wf <- workflow() %>%
  add_model(lda_mod) %>%
  add_recipe(titanic_recipe)

lda_fit <- fit(lda_wf, titanic_train)
```

### Question 7

**Repeat Question 5**, but this time specify a quadratic discriminant analysis model for classification using the "MASS" engine.

```
qda_mod <- discrim_quad() %>%
  set_mode("classification") %>%
  set_engine("MASS")

qda_wkflow <- workflow() %>%
  add_model(qda_mod) %>%
  add_recipe(titanic_recipe)

qda_fit <- fit(qda_wkflow, titanic_train)
```

### Question 8

**Repeat Question 5**, but this time specify a naive Bayes model for classification using the "klaR" engine. Set the usekernel argument to FALSE.

```
nb_mod <- naive_Bayes() %>%
  set_mode("classification") %>%
  set_engine("klaR") %>%
  set_args(usekernel = FALSE)

nb_wkflow <- workflow() %>%
  add_model(nb_mod) %>%
  add_recipe(titanic_recipe)

nb_fit <- fit(nb_wkflow, titanic_train)
```

### Question 9

Now you've fit four different models to your training data.

Use `predict()` and `bind_cols()` to generate predictions using each of these 4 models and your **training** data. Then use the *accuracy* metric to assess the performance of each of the four models.

Which model achieved the highest accuracy on the training data?

The logistic regression model achieved the highest accuracy on the training data since our accuracy estimate is 0.6837881 and the logistic regression model is closest to this, which is 0.6837881.

```
pred_log = predict(log_fit, new_data = titanic_train, type = "class")
pred_lda = predict(lda_fit, new_data = titanic_train, type = "class")
pred_qda = predict(qda_fit, new_data = titanic_train, type = "class")
pred_nb = predict(nb_fit, new_data = titanic_train, type = "class")

bind <- bind_cols(log = pred_log$.pred_class, lda = pred_lda$.pred_class, qda = pred_qda$.pred_class, nb = pred_nb$.pred_class)

bind
```

```
## # A tibble: 623 x 5
##   log   lda   qda   nb   survived
##   <fct> <fct> <fct> <fct> <chr>
## 1 No    No    No    No    No
## 2 No    No    No    No    No
## 3 No    Yes   No    Yes   No
## 4 No    No    No    No    No
## 5 No    No    Yes   No    No
## 6 No    No    No    No    No
## 7 Yes   Yes   Yes   Yes   No
## 8 No    No    No    No    No
## 9 No    No    No    No    No
## 10 No   No    No    No    No
## # ... with 613 more rows
```

```
log_reg_acc <- bind %>%
  accuracy(truth = factor(survived), estimate = log)
log_reg_acc
```

```
## # A tibble: 1 x 3
##   .metric .estimator .estimate
##   <chr>   <chr>       <dbl>
## 1 accuracy binary      0.711
```

```
lda_acc <- bind %>%
  accuracy(truth = factor(survived), estimate = lda)

nb_acc <- bind %>%
  accuracy(truth = factor(survived), estimate = nb)

qda_acc <- bind %>%
  accuracy(truth = factor(survived), estimate = qda)

accuracies <- c(log_reg_acc$.estimate, lda_acc$.estimate,
  nb_acc$.estimate, qda_acc$.estimate)

log_reg_acc$.estimate
```

```
## [1] 0.7110754
```

```
models <- c("Logistic Regression", "LDA", "Naive Bayes", "QDA")
results <- tibble(accuracies = accuracies, models = models)
results %>%
  arrange(-accuracies)
```

```
## # A tibble: 4 x 2
##   accuracies models
##   <dbl> <chr>
## 1 0.734 QDA
## 2 0.713 LDA
## 3 0.711 Logistic Regression
## 4 0.684 Naive Bayes
```

```
augment(log_fit, new_data = titanic_train) %>%
  conf_mat(truth = survived, estimate = .pred_class)
```

```
##           Truth
## Prediction  No  Yes
##           No 328 124
##           Yes  56 115
```

## Question 10

Fit the model with the highest training accuracy to the **testing** data. Report the accuracy of the model on the **testing** data.

Again using the **testing** data, create a confusion matrix and visualize it. Plot an ROC curve and calculate the area under it (AUC).

How did the model perform? Compare its training and testing accuracies. If the values differ, why do you think this is so?

Note that a good performing model would ideally have higher numbers along the diagonal (up-left to down-right) with small numbers on the off-diagonal. In other words, the model would not be great if it tends to predict “No” as “Yes” more often than it should. In my case, the accuracy for the training data set is higher than the testing data set. This is because for my training dataset, there are more predicts where “No” was considered a “Yes”. Therefore, the training dataset’s accuracy is slightly better because of this.

```
pred_log = predict(log_fit, new_data = titanic_test, type = "class")
pred_lda = predict(lda_fit, new_data = titanic_test, type = "class")
pred_qda = predict(qda_fit, new_data = titanic_test, type = "class")
pred_nb = predict(nb_fit, new_data = titanic_test, type = "class")

bind <- bind_cols(log = pred_log$.pred_class, lda = pred_lda$.pred_class, qda = pred_qda$.pred_class, nb = pred_nb$.pred_class)

bind
```

```
## # A tibble: 268 x 5
##   log   lda   qda   nb   survived
##   <fct> <fct> <fct> <fct> <chr>
## 1 No    No    No    No    Yes
## 2 Yes   Yes   Yes   Yes   Yes
## 3 No    No    No    No    No
## 4 No    No    No    No    No
## 5 No    No    No    No    Yes
## 6 No    No    No    No    Yes
## 7 No    No    No    Yes   Yes
## 8 No    No    No    No    No
## 9 No    No    No    No    No
## 10 No   No    No    No    Yes
## # ... with 258 more rows
```

```
log_reg_acc <- bind %>%
  accuracy(truth = factor(survived), estimate = log)
log_reg_acc
```

```
## # A tibble: 1 x 3
##   .metric .estimator .estimate
##   <chr>   <chr>       <dbl>
## 1 accuracy binary      0.672
```

```
lda_acc <- bind %>%
  accuracy(truth = factor(survived), estimate = lda)

nb_acc <- bind %>%
  accuracy(truth = factor(survived), estimate = nb)

qda_acc <- bind %>%
  accuracy(truth = factor(survived), estimate = qda)

accuracies <- c(log_reg_acc$.estimate, lda_acc$.estimate,
  nb_acc$.estimate, qda_acc$.estimate)

log_reg_acc$.estimate
```

```
## [1] 0.6716418
```

```
models <- c("Logistic Regression", "LDA", "Naive Bayes", "QDA")
results <- tibble(accuracies = accuracies, models = models)
results %>%
  arrange(-accuracies)
```

```
## # A tibble: 4 x 2
##   accuracies models
##   <dbl> <chr>
## 1    0.701 QDA
## 2    0.683 LDA
## 3    0.672 Logistic Regression
## 4    0.672 Naive Bayes
```

```
augment(log_fit, new_data = titanic_test) %>%
  conf_mat(truth = survived, estimate = .pred_class)
```

```
##           Truth
## Prediction No Yes
##           No 133 56
##           Yes 32 47
```

```
augment(nb_fit, new_data = titanic_test) %>%
  conf_mat(truth = survived, estimate = .pred_class)
```

```
##           Truth
## Prediction No Yes
##           No 139 62
##           Yes 26 41
```



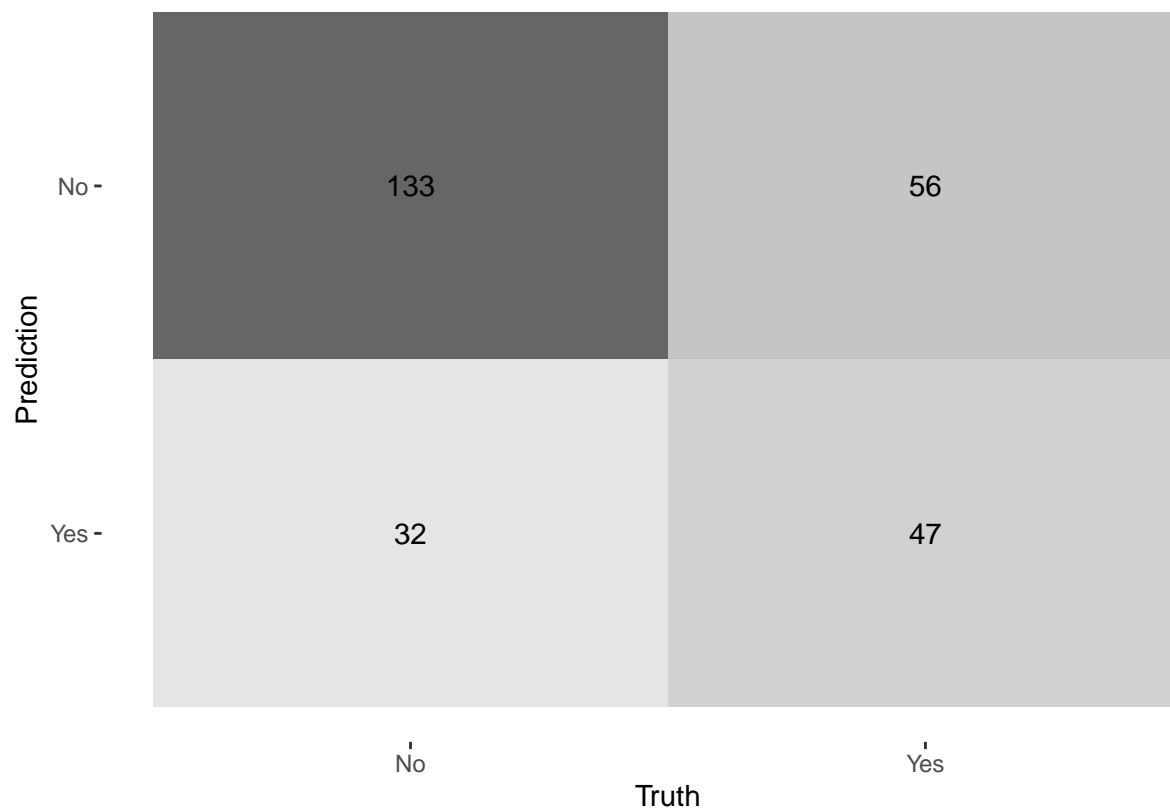
```
augment(lda_fit, new_data = titanic_test) %>%
  conf_mat(truth = survived, estimate = .pred_class)
```

```
##           Truth
## Prediction No Yes
##           No 134 54
##           Yes 31 49
```

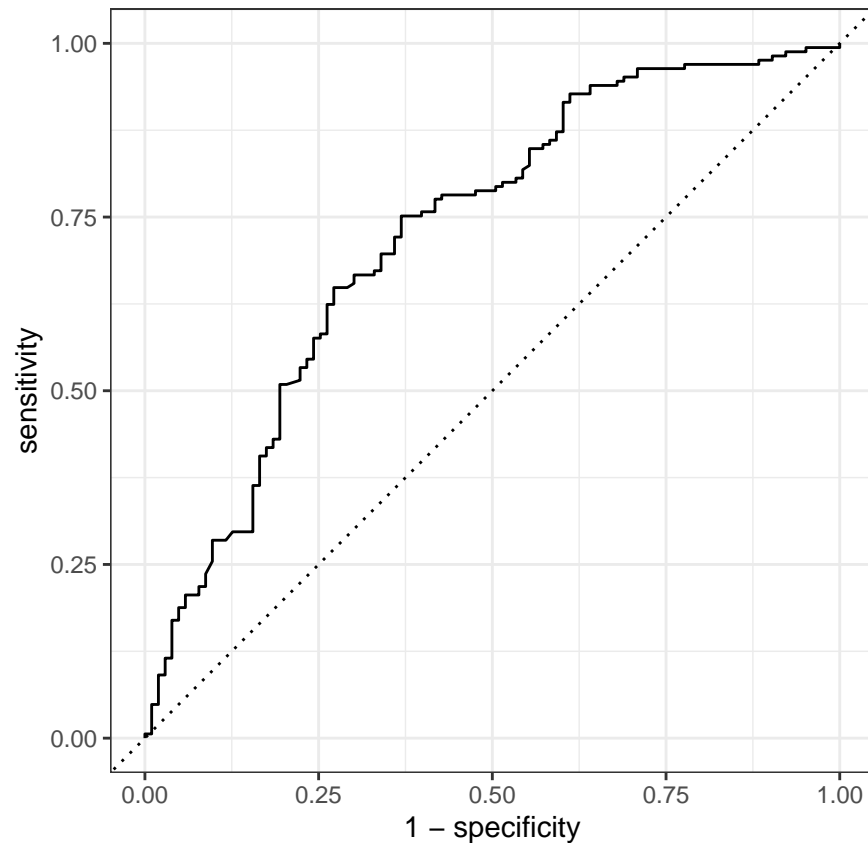
```
augment(qda_fit, new_data = titanic_test) %>%
  conf_mat(truth = survived, estimate = .pred_class)
```

```
##           Truth
## Prediction No Yes
##           No 138 53
##           Yes 27 50
```

```
augment(log_fit, new_data = titanic_test) %>%
  conf_mat(truth = survived, estimate = .pred_class) %>%
  autoplot(type = "heatmap")
```



```
augment(log_fit, new_data = titanic_test) %>%
  roc_curve(factor(survived), .pred_No) %>%
  autoplot()
```



```
library(ggplot2)

augment(log_fit, new_data = titanic_test) %>%
  roc_auc(factor(survived), .pred_No)
```

```
## # A tibble: 1 x 3
##   .metric .estimator .estimate
##   <chr>   <chr>       <dbl>
## 1 roc_auc binary      0.725
```

### Required for 231 Students

In a binary classification problem, let  $p$  represent the probability of class label 1, which implies that  $1 - p$  represents the probability of class label 0. The *logistic function* (also called the “inverse logit”) is the cumulative distribution function of the logistic distribution, which maps a real number  $z$  to the open interval  $(0, 1)$ .

### Question 11

Given that:

$$p(z) = \frac{e^z}{1 + e^z}$$

Prove that the inverse of a logistic function is indeed the *logit* function:

$$z(p) = \ln \left( \frac{p}{1-p} \right)$$

**Question 12**

Assume that  $z = \beta_0 + \beta_1 x_1$  and  $p = \text{logistic}(z)$ . How do the odds of the outcome change if you increase  $x_1$  by two? Demonstrate this.

Assume now that  $\beta_1$  is negative. What value does  $p$  approach as  $x_1$  approaches  $\infty$ ? What value does  $p$  approach as  $x_1$  approaches  $-\infty$ ?