In [48]:
```
import polars as pl
import matplotlib.pyplot as plt

# Load job applicant csv file into dataframe
job_applicants_df = pl.read_csv("Job_Applicants_by_Gender_and_Ethnicity.csv")
assert job_applicants_df is not None
assert job_applicants_df.shape == (187, 14)
print(job_applicants_df.head)

pl.Config.set_tbl_cols(100)
```

```
<bound method DataFrame.head of shape: (187, 14)
```

Fiscal Year	Job Number	Job Description	Apps Received	Female	Male	Unknown_Gender	Black	Hispanic	Asian	Caucasian	American Indian/ Alaskan Native	Filipino	Unknown_Ethnicity
str	str	str	i64	i64	i64	i64	i64	i64	i64	i64	i64	i64	i64
2013-2014	9206	311 DIRECTOR 2014/04/18	54	20	31	3	25	18	1	6	0	0	4
2013-2014	1223	ACCOUNTING CLERK 2013/03/09	648	488	152	8	151	204	123	62	3	79	26
2013-2014	7260	AIRPORT MANAGER R 2014/04/02/14	51	13	37	1	8	12	9	20	0	0	2
2013-2014	3227	AIRPORT POLICE LIEUTENANT 2013/11/15	48	9	38	1	21	14	3	7	0	1	2
2013-2014	2400	AQUARIST 2014/05/02	40	15	24	1	3	7	7	19	1	1	2
…	…	…	…	…	…	…	…	…	…	…	…	…	…
2014-2015	7840	WASTEWATER TREATMENT LABORATORY	16	6	9	1	3	0	5	7	0	0	1
2014-2015	4123	WASTEWATER TREATMENT OPERATOR	125	9	113	3	29	38	10	32	7	4	5
2014-2015	7857	WATER MICROBIOLOGIST 7857 – AR_	179	89	82	8	13	37	64	25	0	18	22
2014-2015	3912	WATER UTILITY WORKER 3912 – AR_	96	2	92	2	8	48	6	23	1	7	3
2014-2015	1774	WORKERS' COMPENSATION ANALYST …	166	100	61	5	44	61	14	21	0	11	15

```
>
```

Out[48]:
```
polars.config.Config
```

In [49]:
```
# Generate a summary of statistics
def stats_overview(df):
    summary_stats = df.select(
        [
            "Apps Received",
            "Black",
            "Hispanic",
            "Asian",
            "Caucasian",
            "American Indian/ Alaskan Native",
            "Filipino",
            "Unknown_Ethnicity",
        ]
    ).describe()
    return summary_stats


stats_overview(job_applicants_df)
```

Out[49]:
shape: (9, 9)

statistic	Apps Received	Black	Hispanic	Asian	Caucasian	American Indian/ Alaskan Native	Filipino	Unknown_Ethnicity
str	f64	f64	f64	f64	f64	f64	f64	f64
"count"	187.0	187.0	187.0	187.0	187.0	187.0	187.0	187.0
"null_count"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
"mean"	499.721925	144.529412	182.165775	37.604278	84.470588	3.374332	19.631016	27.946524
"std"	2252.044225	948.29058	824.193375	98.941786	320.911291	14.938187	61.753827	123.897752
"min"	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
"25%"	38.0	5.0	10.0	3.0	9.0	0.0	1.0	2.0
"50%"	100.0	14.0	24.0	9.0	26.0	1.0	5.0	6.0
"75%"	263.0	42.0	97.0	29.0	64.0	2.0	13.0	20.0
"max"	28230.0	12618.0	10214.0	1094.0	3843.0	153.0	740.0	1475.0

In [50]:
```
# Generate a table showing the total number of applicants by ethnicity
def total_and_eth_value(df):
    total_and_eth = df.select(
        [
            pl.sum("Apps Received").alias("Apps Received"),
            pl.sum("Black").alias("Black"),
            pl.sum("Hispanic").alias("Hispanic"),
            pl.sum("Asian").alias("Asian"),
            pl.sum("Caucasian").alias("Caucasian"),
            pl.sum("American Indian/ Alaskan Native").alias(
                "American Indian/ Alaskan Native"
            ),
            pl.sum("Filipino").alias("Filipino"),
            pl.sum("Unknown_Ethnicity").alias("Unknown_Ethnicity"),
        ]
    )

    # Add a row name for the total row
    total_and_eth = total_and_eth.with_columns(pl.lit("total").alias("statistic"))
    total_by_value = total_and_eth.select(
        ["statistic"] + [col for col in total_and_eth.columns if col != "statistic"]
    )
    return total_by_value


total_and_eth_value(job_applicants_df)
```

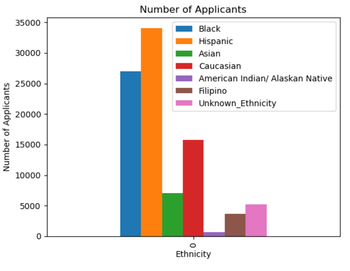
Out[50]:
shape: (1, 9)

statistic	Apps Received	Black	Hispanic	Asian	Caucasian	American Indian/ Alaskan Native	Filipino	Unknown_Ethnicity
str	i64	i64	i64	i64	i64	i64	i64	i64
"total"	93448	27027	34065	7032	15796	631	3671	5226

In [51]:
```
# calculate total number of applicants by ethinicity, for plotting
def ethnicity_total(df):
    eth_total = df[
        [
            "Black",
            "Hispanic",
            "Asian",
            "Caucasian",
            "American Indian/ Alaskan Native",
            "Filipino",
            "Unknown_Ethnicity",
        ]
    ].sum()
    return eth_total


# visualize the total number of applicants by ethnicity
def eth_chart(df):
    eth_and_total = ethnicity_total(df)
    eth_and_total = eth_and_total.to_pandas()
    eth_and_total.plot(kind="bar", stacked=False, title="Number of Applicants")
    plt.xlabel("Ethnicity")
    plt.ylabel("Number of Applicants")
    plt.show()
    return eth_chart


ethnicity_total(job_applicants_df)
eth_chart(job_applicants_df)
```



Out[51]:
```
<function __main__.eth_chart(df)>
```