In [10]:
```
# declare the data into dictionary
data = [
    {
        "student number": 101,
        "name": "Andri",
        "subject": "Programming Basic",
        "grade": 80
    },
    {
        "student number": 102,
        "name": "Budi",
        "subject": "Programming Basic",
        "grade": 90
    },
    {
        "student number": 103,
        "name": "Cika",
        "subject": "Programming Basic",
        "grade": 100
    },
    {
        "student number": 104,
        "name": "Dedi",
        "subject": "Programming Basic",
        "grade": 100
    },
    {
        "student number": 105,
        "name": "Eka",
        "subject": "Programming Basic",
        "grade": 50
    },
    {
        "student number": 106,
        "name": "Feri",
        "subject": "Programming Basic",
        "grade": 40
    },
    {
        "student number": 107,
        "name": "Galih",
        "subject": "Programming Basic",
        "grade": 70
    },
    {
        "student number": 108,
        "name": "Huda",
        "subject": "Programming Basic",
        "grade": 70
    },
    {
        "student number": 109,
        "name": "Intan",
        "subject": "Programming Basic",
        "grade": 60
    },
    {
        "student number": 101,
        "name": "Andri",
        "subject": "Web Programming",
        "grade": 70
    },
    {
        "student number": 102,
        "name": "Budi",
        "subject": "Web Programming",
        "grade": 80
    },
    {
        "student number": 103,
        "name": "Cika",
        "subject": "Web Programming",
        "grade": 80
    },
    {
        "student number": 104,
        "name": "Dedi",
        "subject": "Web Programming",
        "grade": 90
    },
    {
        "student number": 105,
        "name": "Eka",
        "subject": "Web Programming",
        "grade": 90
    },
    {
        "student number": 106,
        "name": "Feri",
        "subject": "Web Programming",
        "grade": 60
    },
    {
        "student number": 107,
        "name": "Galih",
        "subject": "Web Programming",
        "grade": 95
    },
    {
        "student number": 108,
        "name": "Huda",
        "subject": "Web Programming",
        "grade": 85
    },
    {
        "student number": 109,
        "name": "Intan",
        "subject": "Web Programming",
        "grade": 90
    },
]
```

In [11]:
```
# a function to filter the data item with grade more than 80
def higherThan80(data):
    result = []

    for item in data:
        if item.get("grade") > 80:
            result.append(item)

    return result
```

In [12]:
```
# a function to display the data
def printData(data):
    for item in data:
        print("====================")
        print("Student Number: ", item.get("student number"))
        print("Name: ", item.get("name"))
        print("Subject: ", item.get("subject"))
        print("Grade: ", item.get("grade"))
        print("====================")
        print("\n")
```

In [13]:
```
print("Data dengan nilai lebih dari 80\n")
printData(higherThan80(data))
```

```
Data dengan nilai lebih dari 80

====================
Student Number:  102
Name:  Budi
Subject:  Programming Basic
Grade:  90
====================


====================
Student Number:  103
Name:  Cika
Subject:  Programming Basic
Grade:  100
====================


====================
Student Number:  104
Name:  Dedi
Subject:  Programming Basic
Grade:  100
====================


====================
Student Number:  104
Name:  Dedi
Subject:  Web Programming
Grade:  90
====================


====================
Student Number:  105
Name:  Eka
Subject:  Web Programming
Grade:  90
====================


====================
Student Number:  107
Name:  Galih
Subject:  Web Programming
Grade:  95
====================


====================
Student Number:  108
Name:  Huda
Subject:  Web Programming
Grade:  85
====================


====================
Student Number:  109
Name:  Intan
Subject:  Web Programming
Grade:  90
====================
```

In [14]:
```
# import libray pandas and matplotlib
import pandas as pd
import matplotlib.pyplot as plt
```

In [15]:
```
# declare pandas DataFrame from the dictionary data
dataFrame = pd.DataFrame(data)

# student number is unique, so I decided to make it the index
dataFrame = dataFrame.set_index("student number")
dataFrame
```

Out[15]:

student number	name	subject	grade
101	Andri	Programming Basic	80
102	Budi	Programming Basic	90
103	Cika	Programming Basic	100
104	Dedi	Programming Basic	100
105	Eka	Programming Basic	50
106	Feri	Programming Basic	40
107	Galih	Programming Basic	70
108	Huda	Programming Basic	70
109	Intan	Programming Basic	60
101	Andri	Web Programming	70
102	Budi	Web Programming	80
103	Cika	Web Programming	80
104	Dedi	Web Programming	90
105	Eka	Web Programming	90
106	Feri	Web Programming	60
107	Galih	Web Programming	95
108	Huda	Web Programming	85
109	Intan	Web Programming	90

In [16]:
```
# adding a new column called  description
# the values is conditional based on the grade
# if the grade is lower than 70 than the description is FAIL, otherwise it PASS
dataFrame["description"] = ["FAIL" if grade < 70 else "PASS" for grade in dataFrame["grade"]]
dataFrame
```

Out[16]:

student number	name	subject	grade	description
101	Andri	Programming Basic	80	PASS
102	Budi	Programming Basic	90	PASS
103	Cika	Programming Basic	100	PASS
104	Dedi	Programming Basic	100	PASS
105	Eka	Programming Basic	50	FAIL
106	Feri	Programming Basic	40	FAIL
107	Galih	Programming Basic	70	PASS
108	Huda	Programming Basic	70	PASS
109	Intan	Programming Basic	60	FAIL
101	Andri	Web Programming	70	PASS
102	Budi	Web Programming	80	PASS
103	Cika	Web Programming	80	PASS
104	Dedi	Web Programming	90	PASS
105	Eka	Web Programming	90	PASS
106	Feri	Web Programming	60	FAIL
107	Galih	Web Programming	95	PASS
108	Huda	Web Programming	85	PASS
109	Intan	Web Programming	90	PASS

In [19]:
```
# make a grouped data frame, grouped by student number and name,
# inside it has a column named grade which is the mean of the student's grade
groupedDataFrame = dataFrame.groupby(["student number", "name"])["grade"].mean().astype(int)
groupedDataFrame
```

Out[19]:
```
student number  name
101             Andri    75
102             Budi     85
103             Cika     90
104             Dedi     95
105             Eka      70
106             Feri     50
107             Galih    82
108             Huda     77
109             Intan    75
Name: grade, dtype: int32
```

In [23]:
```
# make a bar chart
axis = groupedDataFrame.plot(kind="bar")

# set the y axis min to 0, and max to 100
axis.set_ylim([0, 100])

# set the x axis ticks labels to the student name
axis.set_xticklabels([x.get_text().split(',')[1][0:-1] for x in axis.get_xticklabels()])

# set the axis labels
plt.xlabel("Name")
plt.ylabel("Grade")

# set the chart title
plt.title("Mean of Student Grades Values")

# show or render the chart
plt.show()
```