In [31]:
```
from IPython.core.interactiveshell import InteractiveShell
InteractiveShell.ast_node_interactivity = "all"

import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
%matplotlib inline
import locale
import babel.numbers

import chart_studio.plotly as py
import plotly.express as px
from plotly.offline import download_plotlyjs, iplot, init_notebook_mode, plot
init_notebook_mode(connected=True)
import cufflinks as cf
cf.go_offline()
import plotly.graph_objects as go

plt.rcParams['figure.dpi'] = 140
plt.rcParams['savefig.dpi'] = 140
sns.set(rc={"figure.dpi":160, 'savefig.dpi':160})

amount = float(input("Enter the monthly SIP amount "))
yearlyRate = float(input("Enter the yearly rate of return in % "))
years = int(input("Enter the number of years "))
monthlyRate = yearlyRate/12/100
months = years * 12
futureValue = amount * ((((1 + monthlyRate)**(months))-1) * (1 + monthlyRate))/monthlyRate
futureValue = round(futureValue)
print("The invested amount is",babel.numbers.format_currency(amount*12*years, 'INR', locale='en_IN'))
print("The expected amount you will get is",babel.numbers.format_currency(futureValue, 'INR', locale='en_IN'))

monthlyReturns = [amount * (1 + monthlyRate)]
for i in range(12 * years - 1):
    temp = round(monthlyReturns[i], 2)
    monthlyReturns.append( round( ((temp + amount) * (1 + monthlyRate)), 2 ))

investedAmount = [amount]
for i in range(1, 12 * years):
    investedAmount.append(investedAmount[i-1] + amount)

monthlyReturns_Series = pd.Series(monthlyReturns)
investedAmount_Series = pd.Series(investedAmount)

sip = pd.DataFrame({"Invested":investedAmount_Series, "Returns":monthlyReturns_Series})
sip.index = pd.RangeIndex(1,years*12 +1,1)

px.bar(data_frame=sip,
       title="Magic of SIP | "+"Monthly = "+str(amount)+" | Yearly Rate = "+
       str(yearlyRate)+" | Years = "+str(years),
       range_y=[0,futureValue + amount*12*years],
       color_discrete_sequence=[px.colors.qualitative.Plotly[0], px.colors.qualitative.T10[4]]).update_layout(
    xaxis_title="Month", yaxis_title="Amount"
)


fig = px.pie(values=[(sip.Returns.iloc[-1]/(sip.Returns.iloc[-1]+sip.Invested.iloc[-1]))*100,
                     (sip.Invested.iloc[-1]/(sip.Returns.iloc[-1]+sip.Invested.iloc[-1]))*100

                    ],title="Returns % vs Invested %", names=['Returns','Invested'],
                   color_discrete_sequence=[px.colors.qualitative.Plotly[0], px.colors.qualitative.T10[4]])
fig.show()

sip_percentage = sip.copy()
sip_percentage.Returns = (sip.Returns/(sip.Returns+sip.Invested))*100
sip_percentage.Invested = (sip.Invested/(sip.Returns+sip.Invested))*100
# px.bar(data_frame=sip_percentage, title="Magic of SIP | "+"Monthly = "+str(amount)+" | Yearly Rate = "+
#        str(yearlyRate)+" | Years = "+str(years)).update_layout(
#     xaxis_title="Month", yaxis_title="Percentage"
# )
```

```
Enter the monthly SIP amount 10000
Enter the yearly rate of return in % 12
Enter the number of years 3
The invested amount is ₹3,60,000.00
The expected amount you will get is ₹4,35,076.00
```