A program to compute the value of an investment carried 10 years into the future

```python
# futval.py
# This program calculates the future value of a 10-year investment.

def main():
    print("This program calculates the future value")
    print("of a 10-year investment.")
    principal = input("Enter the initial principal: ")
    apr = input("Enter the annual interest rate: ")
    for i in range(10):
        principal = principal * (1 + apr)
    print "The value in 10 years is: ", principal

main()
```

## >>>
## This program calculates the future value of a 10-year investment.
## Enter the initial principal: 1000
## Enter the annual interest rate: .05
## The value in 10 years is: 1628.89462678
## >>>

## >>>
## This program calculates the future value of a 10-year investment.
## Enter the initial principal: 1000
## Enter the annual interest rate: 1.0
## The value in 10 years is: 1024000.0
## >>> # Good rate; it doubles every year!
## >>>

## >>>
## This program calculates the future value of a 10-year investment.
## Enter the initial principal: 1000
## Enter the annual interest rate: .1
## The value in 10 years is: 2593.7424601
## >>>
# futval_graph.py

from graphics import *

def main():
    # Introduction
    print("This program plots the growth of a 10-year investment."

    # Get principal and interest rate
    principal = eval(input("Enter the initial principal: "))
    apr = eval(input("Enter the annualized interest rate: "))

    # Create a graphics window with labels on left edge
    win = GraphWin("Investment Growth Chart", 320, 240)
    win.setBackground("white")
    Text(Point(20, 230), ' 0.0K').draw(win)
    Text(Point(20, 180), ' 2.5K').draw(win)
    Text(Point(20, 130), ' 5.0K').draw(win)
    Text(Point(20, 80), ' 7.5K').draw(win)
    Text(Point(20, 30), '10.0K').draw(win)

    # Draw bar for initial principal
    height = principal * 0.02
    bar = Rectangle(Point(40, 230), Point(65, 230-height))
    bar.setFill("green")
    bar.setWidth(2)
    bar.draw(win)

    # Draw bars for successive years
    for year in range(1,11):
        # calculate value for the next year
        principal = principal * (1 + apr)
        # draw bar for this value
        xll = year * 25 + 40
        height = principal * 0.02
        bar = Rectangle(Point(xll, 230), Point(xll+25, 230-height))
        bar.setFill("green")
        bar.setWidth(2)
        bar.draw(win)

    input("Press <Enter> to quit")
    win.close()

main()
initial principal $= 2000$
apr $= .1$

\[(0,0) \quad x \quad 320\]

\[(10.0K, 7.5K, 5.0K, 2.5K, 0.0K)\]

\[(40, 230) \quad (65, 190) \quad (320, 240)\]