**Projects Ques:**

1. Make Change Write a program to make change for an amount of money from 0 through 99 cents input by the user. The output of the program should show the number of coins from each denomination used to make the change.

Ans:

>>> amount=float(input("Enter amount of change: "))

**Enter amount of change: 93**

>>> quarters=amount//25

>>> amount-=quarters\*25

>>> dimes=amount//10

>>> amount-=dimes\*10

>>> nickels=amount//5

>>> amount-=nickels\*5

>>> cents=amount

>>> print("Quarters: "+str(quarters))

**Quarters: 3**

>>>print("Dimes: "+str(dimes))

**Dimes: 1**

>>>print("Nickels: "+str(nickels))

**Nickels: 1**

>>>print("Cents: "+str(cents))

**Cents: 3**

2. Car Loan If A dollars is borrowed at r% interest compounded monthly to purchase a car with monthly payments for n years, then the monthly payment is given by the formula monthly payment = i 1 - (1 + i) -12n # A where i = r 1200 . Write a program that calculates the monthly payment after the user gives the amount of the loan, the interest rate, and the number of years. See Fig. 2.35.

Ans:

>>> loan=float(input("Enter amount of loan: "))

**Enter amount of loan: 12000**

>>> rate=float(input("Enter interest rate (%): "))

**Enter interest rate (%): 6.4**

>>> years=float(input("Enter numbers of years: "))

**Enter numbers of years: 5**

>>> i=float(rate/1200)

>>> mp=round((i\*loan)/(1-((1+i)\*\*(-12\*years))),2)

>>> print("Monthly payment: $"+str(mp))

**Monthly payment: $234.23**

3. Bond Yield One measure of a bond’s performance is its Yield To Maturity (YTM). YTM values for government bonds are complex to calculate and are published in tables.

Ans:

>>> facevalue=float(input("Enter face value of bond: "))

**Enter face value of bond: 1000**

>>> interestrate=float(input("Enter coupon interest rate: "))

**Enter coupon interest rate: .04**

>>> marketprice=float(input("Enter current market price: "))

**Enter current market price: 1180**

>>> years=float(input("Enter years until maturity: "))

**Enter years until maturity: 15**

>>> intr=float(facevalue\*interestrate)

>>> a=(facevalue-marketprice)/years

>>> b=(facevalue+marketprice)/2

>>> ytm=round(((intr+a)/b)\*100,2)

>>> print("Approximate YTM: "+str(ytm)+"%")

**Approximate YTM: 2.57%**

4. Unit Price Write a program that requests the price and weight of an item in pounds and ounces, and then determines the price per ounce.

Ans:

>>> price=float(input("Enter price of item: "))

**Enter price of item: 25.50**

>>> print("Enter weight of item in pounds and ounces separately.")

**Enter weight of item in pounds and ounces separately.**

>>> pounds=float(input("Enter pounds: "))

**Enter pounds: 1**

>>> ounces=float(input("Enter ounces: "))

**Enter ounces: 9**

>>> pricePerOunce=round(price/((16\*pounds)+ounces),2)

>>> print("Price per ounce: $"+str(pricePerOunce))

**Price per ounce: $1.02**

5. An investor’s stock portfolio consists of four Exchange Traded Funds (SPY, QQQ, EEM, and VXX). Write a program that requests the amount invested in each fund as input and then displays the total amount invested and each fund’s percentage of the total amount invested.

Ans:

>>> spy=float(input("Enter amount invested in SPY: "))

**Enter amount invested in SPY: 876543.21**

>>> qqq=float(input("Enter amount invested in QQQ: "))

**Enter amount invested in QQQ: 234567.89**

>>> eem=float(input("Enter amount invested in EEM: "))

**Enter amount invested in EEM: 345678.90**

>>> vxx=float(input("Enter amount invested in VXX: "))

**Enter amount invested in VXX: 123456.78**

>>> print("\n")

>>> total=round(spy+qqq+eem+vxx,2)

>>> pspy=round((spy/total)\*100,2)

>>> pqqq=round((qqq/total)\*100,2)

>>> peem=round((eem/total)\*100,2)

>>> pvxx=round((vxx/total)\*100,2)

>>> print("ETF\tPERCENTAGE")

**ETF PERCENTAGE**

>>> print("-"\*18)

**------------------**

>>> print("SPY\t"+str(pspy)+"%")

**SPY 55.47%**

>>> print("QQQ\t"+str(pqqq)+"%")

**QQQ 14.84%**

>>> print("EEM\t"+str(peem)+"%")

**EEM 21.87%**

>>> print("VXX\t"+str(pvxx)+"%\n")

**VXX 7.81%**

>>> print("Total amount invested: $"+str(total))

**Total amount invested: $1580246.78**

6. Length Conversion Write a program to convert a U.S. Customary System length in miles, yards, feet, and inches to a Metric System length in kilometers, meters, and centimeters.

Ans:

>>> miles=float(input("Enter number of miles: "))

**Enter number of miles: 5**

>>> yards=float(input("Enter number of yards: "))

**Enter number of yards: 20**

>>> feet=float(input("Enter number of feet: "))

**Enter number of feet: 2**

>>> inches=float(input("Enter number of inches: "))

**Enter number of inches: 4**

>>> totalinches=(63360\*miles) + (36\*yards) + (12\*feet)+ inches

>>> totalkilometers=int(totalinches//39370)

>>> temp1=totalinches%39370

>>> totalmeters=int(temp1//39.37)

>>> temp2=(temp1%39.37)\*2.54

>>> totalcentimeters=round(temp2,1)

>>> print("Metric length:")

**Metric length:**

>>> print(str(totalkilometers)+" kilometers")

**8 kilometers**

>>> print(str(totalmeters)+" meters")

**65 meters**

>>> print(str(totalcentimeters)+" centimeters")

**73.5 centimeters**