**Calculate Change Program**

**Imports:**

java.util.Scanner

**Global Variables:**

Scanner sc – scanner object to read System.in

**Methods:**

static void main(String[] args) – process control with loop for multiple runs

static int getCoin(String cointype) – obtain and validate input of cointype

static void coinTotal(int q, int d, int n, int p) – calculate and display total value of quarters q, dimes d, nickels n,

and pennies p.

**Process:**

main(String[] args):

local variables: int q, int d, int n, int p – variables for coin count inputs

String choice – variable for user ‘continue’ question

1. Display welcome message
2. Have change? 🡪 choice
3. while loop on choice == yes
   1. q = getCoin(quarters)
   2. d = getCoin(dimes)
   3. n = getCoin(nickels)
   4. p = getCoin(pennies)
   5. coinTotal()
   6. More change? 🡪 choice
4. Display end message

getCoin(String coinname):

local variables: int c – coin input value to return

1. do - loop to control input/validation process
   1. Try
      1. How many ‘coinname’? 🡪 c
      2. C < 0? 🡪 error message
   2. Catch
      1. Illegal input message
      2. Clear input buffer
      3. Set c to sentinel value (to force loop to repeat)
      4. while (c is invalid)
2. return c;

coinTotal(int qr, int dm, int ni, int pn):

local variables: int dollars, int cents, int totalcents

1. calculate totalcents = (q \* 25) + (d \* 10) + (n \* 5) + p
2. calculate dollars = totalcents / 100 - integer division
3. calculate cents = totalcents modulus 100
4. display results