# Homework 5 Subroutines

# 1. Describe briefly three advantages of using subroutines in programs. [6]

1. they reduce the duplication of code
2. allows the subroutine to be used in more than one place
3. more efficient than rewriting the code

# 2. (a) What is a global variable? [1]

a variable used all the way throughout the program

# (b) What is a local variable? [1]

a variable belonging to a function

# (c) What is the advantage of using local variables in subroutines? [2]

# Local variables are confined to the subroutine so you can reuse the variable in other parts of the program

# 3. Write a program in pseudocode that allows the user to add a name to a list array that holds up to ten names. The main program should call a subroutine that presents the user with a menu of three choices:

# 1 Add name

# 2 Display list

# 3 Quit

# The subroutine accepts and validates the user choice (1-3). If it is invalid, an appropriate error message should be displayed and the user asked to re-enter until they input a valid choice.

list=["","","","","","","","","",""]

repeat=True

def menu():

i=0

print("1 Add name")

print("2 Display list")

print("3 Quit")

choice = int(input("Enter choice: "))

if choice < 4 and choice > 0:

if choice == 1:

i=i+1

name = input("Enter name: ")

list[i-1]=name

if choice > 3 or choice < 1:

print("Invalid choice")

menu()

elif choice == 2:

for x in range(0,len(list)):

print(list[x-1])

elif choice == 3:

print("Program Terminating...")

quit()

while repeat==True:

menu()

The main program then branches to one of two subroutines which adds a name or displays the list, or quits the program with a message “Program terminating” if the user selects option 3.

# 

# If the user chooses to add a name, they should be prompted to enter a list number indicating where they want the name to be inserted. If the location is occupied, it will overwrite the name.

# [10]

[Total 20 marks]

list=["","","","","","","","","",""]

repeat=True

def menu():

print("1 Add name")

print("2 Display list")

print("3 Quit")

choice = int(input("Enter choice: "))

if choice < 4 and choice > 0:

if choice == 1:

num=int(input("which listing would you like to add/replace? 1-10: "))

if num < 11 and num > 0:

name = input("Enter name: ")

list[num]=name

else:

menu()

if choice > 3 or choice < 1:

print("Invalid choice")

menu()

elif choice == 2:

for x in range(0,len(list)):

print(list[x-1])

elif choice == 3:

print("Program Terminating...")

quit()

while repeat==True:

menu()