Selection Structure Practice Problems

# True/False Questions

1. In an IF…ELSE IF…ELSE IF structure, each statement whose expressions evaluate to true will run their block of code.
2. In an IF…ELSE IF…ELSE IF statement, the first conditional expression that evaluates to true is the only block of code that will run.
3. In an IF…ELSEIF…ELSEIF statement, the first conditional expression that evaluates to true is the only block of code that will run.
4. In a program statement, both the IF and ELSE statements will be executed every time.
5. A DEFAULT CASE is required as part of a SWITCH statement.

# Multiple Choice Questions

1. Selection structures use what type of expression to determine if a block of code should run.
   1. Boolean
   2. Byte
   3. Bitlocker
   4. Bubble
2. What is the name of the CASE that executes if no other cases match for a SWITCH selection structure?
   1. Default
   2. Else
   3. InCase
   4. None

# Programming & Problem-Solving Questions – Reading Code

Trace and print out the exact output of the following pseudocode segments or programs.

BEGIN MAIN

n = 2

SWITCH (n) OF

1: PRINT(“Number 1”)

2: PRINT(“Number 3”)

3: PRINT(“Number 3”)

4: PRINT(“Number 4”)

OTHERS:

PRINT(“Number 5”)

END SWITCH

END MAIN

BEGIN MAIN

N = 30;  
IF (N remainder 2 = 0) THEN  
 PRINT(N + " is Even")

ENDIF

IF (N remainder 5 = 0) THEN  
 PRINT(N + " is multiple of 5")  
ENDIF

IF (N remainder 2 = 0) THEN  
 PRINT(N + " is Even")  
ELSE IF (N remainder 5 = 0) THEN  
 PRINT(N + " is multiple of 5")

ENDIF

END MAIN

BEGIN MAIN

CREATE avatar

PRINTLINE (“1. Scooby-Doo”)

PRINTLINE (“2. Shaggy Rogers”)

PRINTLINE (“3. Fred Jones”)

PRINTLINE (“4. Velma Dinkley”)

PRINTLINE (“5. Daphne Blake”)

PRINT (“Please select your avatar: “)

READ avatar

SWITCH (avatar)

CASE 1: PRINTLINE “Ruh-roh, you chose Scooby-Doo.”

CASE 2: PRINTLINE “Zoinks! You chose Shaggy.”

CASE 3: PRINTLINE “Let’s split up, gang!” You chose Fred.” BREAK

CASE 4: PRINTLINE “Jinkies! You chose Velma.”

CASE 5: PRINTLINE “Jeepers! You chose Daphne.” BREAK

DEFAULT: PRINTLINE “You chose Scrappy-Doo, no one chooses him!”

END SWITCH

END MAIN

What is the exact output from this code if avatar is assigned the value of 2 by the user’s input?

BEGIN MAIN

CREATE avatar

PRINTLINE (“1. Scooby-Doo”)

PRINTLINE (“2. Shaggy Rogers”)

PRINTLINE (“3. Fred Jones”)

PRINTLINE (“4. Velma Dinkley”)

PRINTLINE (“5. Daphne Blake”)

PRINT(“Please select your avatar: “)

READ avatar

SWITCH (avatar)

CASE 1: PRINTLINE “Ruh-roh, you chose Scooby-Doo.” BREAK

CASE 2: PRINTLINE “Zoinks! You chose Shaggy.”

CASE 3: PRINTLINE “Let’s split up, gang!” You chose Fred.” BREAK

CASE 4: PRINTLINE “Jinkies! You chose Velma.”

CASE 5: PRINTLINE “Jeepers! You chose Daphne.” BREAK

DEFAULT: PRINTLINE “You chose Scrappy-Doo, no one chooses him!”

END SWITCH

END MAIN

What is the exact output from this code if avatar is assigned the value of 4 by the user’s input?

BEGIN MAIN

CREATE avatar

PRINTLINE (“1. Scooby-Doo”)

PRINTLINE (“2. Shaggy Rogers”)

PRINTLINE (“3. Fred Jones”)

PRINTLINE (“4. Velma Dinkley”)

PRINTLINE (“5. Daphne Blake”)

PRINT (“Please select your avatar: “)

READ avatar

SWITCH (avatar)

CASE 1: PRINTLINE “Ruh-roh, you chose Scooby-Doo.” BREAK

CASE 2: PRINTLINE “Zoinks! You chose Shaggy.”

CASE 3: PRINTLINE “Let’s split up, gang!” You chose Fred.”

CASE 4: PRINTLINE “Jinkies! You chose Velma.” BREAK

CASE 5: PRINTLINE “Jeepers! You chose Daphne.”

DEFAULT: PRINTLINE “You chose Scrappy-Doo, no one chooses him!” BREAK

END SWITCH

END MAIN

What is the exact output from this code if avatar is assigned the value of 5 by the user’s input?

The local Ted & Barry’s ice cream parlor place has asked you to help them test an online ordering program. You are to determine which statement(s) will be written to the console that tells the employees which scoops of ice cream the customers have ordered based on the following code.

BEGIN MAIN

SWITCH (flavor)

CASE 1: PRINT “Chocolate ”

CASE 2: PRINTLINE “Butter Pecan ”

BREAK

CASE 3: PRINT “Strawberry ”

CASE 4: PRINTLINE “Vanilla ”

BREAK

CASE 5: PRINT “Rocky Road ”

BREAK

CASE 6: PRINT “Mint Chocolate Chip ”

DEFAULT: PRINTLINE “sundae.”

END SWITCH

END MAIN

Write the exact output for each value of flavor (1-6):

What is the exact output from this code?

BEGIN MAIN

CREATE x = 54;

CREATE y = 28;

PRINTLINE (“Tomatoes.”)

IF (x > 50 AND y < 82)

{

PRINTLINE(“Potatoes”)

}

ELSE IF (x == 44 AND y != 14)

{

PRINTLINE (“Green Onions”)

}

ELSE

{

PRINTLINE (“Corn”)

}

END IF

PRINTLINE (“String Beans”)

END MAIN

What is the exact output from this code?

BEGIN MAIN

CREATE x = 44;

CREATE y = 82;

PRINTLINE (“Pumpkin.”)

IF (x > 50 AND y < 82)

{

PRINTLINE(“Asparagus”)

}

ELSE IF (x == 44 AND y != 14)

{

PRINTLINE (“Green Beans”)

}

ELSE

{

PRINTLINE (“Cucumber”)

}

END IF

PRINTLINE (“Spinach”)

END MAIN

What is the exact output from this code?

BEGIN MAIN

CREATE x = 48;

CREATE y = 42;

PRINTLINE (“Celery.”)

IF (x > 50 AND y < 82)

{

PRINTLINE(“Broccoli”)

}

ELSE IF (x == 44 AND y != 14)

{

PRINTLINE (“Snap Peas”)

}

ELSE

{

PRINTLINE (“Okra”)

}

END IF

PRINTLINE (“Squash”)

END MAIN

Determine the output for each value of choice (1-6):

BEGIN MAIN

CREATE choice

PRINT “Please make your selection (1-5): “

READ choice

SWITCH (choice)

CASE 1: PRINT “Atlanta Braves.”

CASE 2: PRINT “Atlanta Dream.” BREAK

CASE 3: PRINT “Atlanta Falcons.”

CASE 4: PRINT “Atlanta Hawks.” BREAK

CASE 5: PRINT “Atlanta United.”

DEFAULT: PRINT “Invalid Selection.”

END SWITCH

END MAIN

What would be the exact output if a user entered 1?

What is the exact output from this code?

BEGIN MAIN

CREATE x = 5

IF ((x \* 2) == 8)

PRINT x

ELSE IF (x == 5)

PRINT “End program.”

ELSE IF (x > 0)

PRINT “Boo!”

ELSE

PRINT x\*x

END IF

END MAIN

The local McHamberger® place has asked you to help them update their menu. You are to determine which statement(s) will be written to the console that tells the employees which menu items the customers have ordered based on the following code statement.

int order

SWITCH (order)

CASE 1: PRINTLINE (“McMilkshake®”)

BREAK

CASE 2: PRINTLINE(“Double McHamberger®”)

CASE 3: PRINTLINE(“Large Drink”)

BREAK

CASE 4: PRINTLINE(“Large McFries®”)

BREAK

CASE 5: PRINTLINE(“McFish® Filet”)

DEFAULT: PRINTLINE(“Big McHamberger® Meal”)

END SWITCH

Determine the output for each value of order (1-6)

**SWITCH/CASE:** SeaWorld needs your help to determine which of their sea creatures are scheduled to appear in the Sea Showcase.

SWITCH(animal)

CASE ‘E’: PRINTLINE(“The EELs are next in the show.”)

CASE ‘D’: PRINTLINE(“The DOLPHINS are next in the show.”)

BREAK

CASE ‘H’: PRINTLINE(“The SHARKS are next in the show.”)

CASE ‘S’: PRINTLINE(“The STINGRAYS are next in the show.”)

CASE ‘W’: PRINTLINE(“The WHALES are next in the show.”)

BREAK

DEFAULT: PRINTLINE(“All animals have performed, reset for next show.”)

BREAK

END SWITCH

Determine the output for each value of animal (‘E’, ‘D’, ‘F’, ‘H’, ‘S’, ‘W’).

What is the output of the following code for each value of x (1-6)?

SWITCH (x)

CASE 1: PRINTLINE (“hello world”)

BREAK

CASE 2: PRINTLINE (“hELLO wORLD”)

CASE 3: PRINT (“HELLO WORLD”)

BREAK

CASE 4: PRINTLINE(“Hello”)

CASE 5: PRINT(“World”)

BREAK

DEFAULT: BREAK

**SWITCH/CASE:** Zoo Atlanta has asked you tohelp update their feeding program. You are to determine which statement(s) will be written to the console that tells the animal handlerswhich animal(s) need to be fed based on the following code segment:

SWITCH(animal)

CASE ‘E’: PRINTLINE(“The ELEPHANTS need care and feeding.”)

CASE ‘G’: PRINTLINE(“The GIRAFFES need care and feeding.”)

BREAK

CASE ‘H’: PRINTLINE(“The HIPPOPOTOMI need care and feeding.”)

BREAK

CASE ‘L’: PRINTLINE(“The LIONS need care and feeding.”)

CASE ‘Z’: PRINTLINE(“The ZEBRAS need care and feeding.”)

BREAK

DEFAULT: PRINTLINE(“All animals must be fed.”)

END SWITCH

Determine the output for each value of animal (‘E’, ‘G’, ‘F’, ‘H’, ‘L’, ‘Z’).

# Programming & Problem-Solving Questions – Writing Code

1. Write a Boolean expression that evaluates to **true** if **age** is greater than 15 and less than 21.
2. Write a Boolean expression that evaluates to **true** if **weight** is greater than or equal to 50 pounds or **height** is greater than 60 inches.
3. Declare an integer variable (call it value); initialize the variable with an input from the user; check if the variable (value)is even or not; finally, print proper message such as “value is even” or “ value is odd”.
4. Complete the following code using an **IF-ELSEIF-ELSE statement** to check whether a user input (integer value) is EVEN, ODD, ZERO, or NEGATIVE. Sample outputs of the code segment are as follows:

Entered value is: 34

This value is EVEN

Entered value is: 19

This value is ODD

Entered value is: 0

This value is ZERO

Entered value is: -12

This value is NEGATIVE

1. Re-write the following if statement structure as a SWITCH/CASE statement.

X = 1

A = 3  
 IF (a is equal to 1) THEN  
 x = x + 5  
 ELSE IF (a is equal to 2) THEN  
 x = x + 10  
 ELSE IF (a is equal to 3) THEN  
 x = x + 15  
 ELSE IF (a is equal to 4) THEN  
 x = x + 20  
 ELSE x = x + 100

ENDIF

PRINT("x = " + x);

1. Settlers of Catan is a popular strategy board game where players collect resources and use them to "settle" on the Island of Catan.  Using resources like brick, lumber, wool, ore, and grain, players build roads, settlements, and cities in an attempt to earn victory points.
   1. Write a complete program that asks the user to enter the number of victory points they have earned and the number of knight cards they have.  If they have 10 or more victory points, print "Congratulations!  You've won the game!"  If they have at least three knights, add 2 points to their victory points.
   2. Write a complete program that asks the user to enter the number of wood cards they have and their dice roll (a number between 2 and 12).  If the user's dice roll is seven, set the value for their wood cards to zero.  Otherwise, increase their wood cards by one.
   3. Write a complete program that asks the user how many ore cards they have and how many grain cards they have.  If they have at least 3 ore cards and at least 2 grain cards, ask if they'd like to buy a city.
   4. Write a complete program that asks the user to enter their dice roll value (a number between 2 and 12).  If the user's dice roll is seven, print "Congratulations, you've been robbed!"  Otherwise, print "Whew!  That was close!"
   5. Write a complete program that asks the user to enter the number of victory points they have and the number of roads they have.  If they have at least 5 road segments, print "Congratulations, you've got the longest road!" and increase their victory points by 2.
   6. Write a complete program that asks the user if they own a harbor.  If they do, print "Congratulations! You earn double elements every time someone rolls the number associated with your harbor."
   7. Write a complete program that asks the user to enter the number of settlements they have.  If they have four or fewer settlements, print "You need brick, lumber, wool, and grain to build another settlement."  Otherwise, print "It's time to upgrade your settlement.  You'll need ore and grain to do that."
2. Write a complete program that declares two variables and asks user to enter two numbers to store in those variables. Using an IF...ELSE the program then will print out the difference of the two numbers if the first number entered is larger than the second number and will print out the sum of the two numbers if the second number entered is larger than the first number.
3. Write a complete program that prompts the user for a letter grade (A, B, C, D, F) and uses a **switch statement** to printout a message as follows:

A: the message is: Job Well Done!

B: the message is: Good Job.

C: the message is: You can do better.

D: the message is: This is poor performance.

F: the message is: This is not acceptable!

Nonmatching entries should have a response also.

1. Write a complete program that asks the user for their GPA (Grade Point Average) and number of credits earned reading those in and storing them in variables. If the user’s GPA is at least a 2.0 and number of credits is at least 120, print “You can graduate.” Otherwise, it should print “You must raise your GPA to graduate.”
2. Write a complete program that prompts the user for a number (1, 2, 3 or 4) and uses a **switch statement** to printout a message as follows:

1: Print the message: “Winter is coming.”

2: Print the message: “Spring has sprung!”

3: Print the message: “Summer funtime.”

4: Print the message: “Autumn leaves fall.”

Non matching entries should have a response also.

1. KSU's Dining Services has contacted you to help them finish writing the code based on the pseudocode above to assist their student workers while cooking meals in The Commons and Stingers.

MAIN

CREATE userInput

CREATE temperature = 0

PRINTLINE “How would you like your porkchop cooked?”

PRINTLINE “1. Medium-Rare”

PRINTLINE “2. Medium”

PRINTLINE “3. Medium-Well”

PRINTLINE “4. Well”

PRINT “Please enter the number for your porkchop: ”

READ userInput

**//YOUR CODE WILL GO HERE**

PRINTLINE “Your porkchop will be cooked to an internal temperature of ” + temperature + “ degrees.”

END MAIN

Using the variables provided in the pseudocode above, write a SWITCH/CASE with a unique case for each of the menu items.

Each case should provide a descriptive message.

Each case should also set the value of the temperature variable.

* 1. Medium-Rare porkchops are cooked to a temperature of 145 degrees.
  2. Medium porkchops are cooked to a temperature of 150 degrees.
  3. Medium-Well porkchops are cooked to a temperature of 155 degrees.
  4. Well porkchops are cooked to a temperature of 160 degrees.

1. KSU's Dining Services has contacted you to help them finish writing the code based on the pseudocode above to assist their student workers while cooking meals in The Commons and Stingers.

MAIN

CREATE userInput

CREATE temperature = 0

PRINTLINE “What cut of chicken would you like?”

PRINTLINE “1. Chicken breast”

PRINTLINE “2. Chicken thigh”

PRINTLINE “3. Chicken leg”

PRINTLINE “4. Chicken wing”

PRINT “Please enter the number for your choice: ”

READ userInput

**//YOUR CODE WILL GO HERE**

PRINTLINE “Your chicken will be cooked to an internal temperature of ” + temperature + “ degrees.”

END MAIN

Using the variables provided in the pseudocode above, write a SWITCH/CASE with a unique case for each of the menu items.

Each case should provide a descriptive message.

Each case should also set the value of the temperature variable.

1. Chicken breasts are cooked to a temperature of 165 degrees.
2. Chicken thighs are cooked to a temperature of 175 degrees.
3. Chicken legs are cooked to a temperature of 170 degrees.
4. Chicken wings are cooked to a temperature of 160 degrees.
5. KSU's Dining Services has contacted you to help them finish writing the code based on the pseudocode above to assist their student workers while cooking meals in The Commons and Stingers.

MAIN

CREATE userInput

CREATE temperature = 0

PRINTLINE “What would you like for lunch?”

PRINTLINE “1. Ham”

PRINTLINE “2. Fish”

PRINTLINE “3. Chicken”

PRINTLINE “4. Hamburger”

PRINT “Please enter the number for your entree: ”

READ userInput

**//YOUR CODE WILL GO HERE**

PRINTLINE “Your food will be cooked to an internal temperature of ” + temperature + “ degrees.”

END MAIN

Using the variables provided in the pseudocode above, write a SWITCH/CASE with a unique case for each of the menu items.

Each case should provide a descriptive message.

Each case should also set the value of the temperature variable.

* 1. Ham is cooked to a temperature of 140 degrees.
  2. Fish cooked to a temperature of 145 degrees.
  3. Chicken is cooked to a temperature of 165 degrees.
  4. Hamburger is cooked to a temperature of 160 degrees.

1. KSU's Dining Services has contacted you to help them finish writing the code based on the pseudocode above to assist their student workers while cooking meals in The Commons and Stingers.

MAIN

CREATE userInput

CREATE temperature = 0

PRINTLINE “How would you like your steak cooked?”

PRINTLINE “1. Rare”

PRINTLINE “2. Medium Rare”

PRINTLINE “3. Medium”

PRINTLINE “4. Medium Well”

PRINT “Please enter the number for your steak: ”

READ userInput

**//YOUR CODE WILL GO HERE**

PRINTLINE “Your steak will be cooked to an internal temperature of ” + temperature + “ degrees.”

END MAIN

Using the variables provided in the pseudocode above, write a SWITCH/CASE with a unique case for each of the menu items.

Each case should provide a descriptive message.

Each case should also set the value of the temperature variable.

* 1. Rare steaks have a cool red center. They are cooked to a temperature of 120 degrees.
  2. Medium Rare steaks have a warm red center. They are cooked to a temperature of 130 degrees.
  3. Medium steaks have a hot pink center. They are cooked to a temperature of 140 degrees.
  4. Medium Well steaks have a mostly brown center. They are cooked to a temperature of 150 degrees.

1. KSU’s Registrar’s Office has asked for your assistance in writing a program to help students when registering for courses each semester. Undergraduate students will be classified based on the number of earned institutional hours.
   1. Freshman: 0 - 29 hours
   2. Sophomore: 30 - 59 hours
   3. Junior: 60 - 89 hours
   4. Senior: 90 hours or more

Write a complete program that prompts the user for the number of credit hours they have completed and use a conditional statement to print out their class standing based on the information they provided.

1. KSU’s Registrar’s Office has asked for your assistance in writing a program to help students when registering for courses each semester. KSU’s policy on maximum course loads during the academic year is as follows: A student in good standing may register for up to 18 hours. The Registrar may approve up to 21 hours for students with an institutional GPA of 3.5 or higher.

Write a complete program that prompts the user for the number of credit hours they have signed up for. Write the necessary conditional statement(s) to address the stipulations in KSU’s policy. Once the maximum number of hours is determined, display a message to the user that states “You may enroll in X credit hours this semester.” where X is the number of credit hours determined by your program.

1. KSU’s Registrar’s Office has asked for your assistance in writing a program to help students when registering for courses each semester. All KSU students pay fees in addition to their tuition.
   1. Write a complete program that uses a conditional statement to display how much a student will pay in fees based on the number of hours a student is registered for that is entered as input.
   2. Students registered for 1 – 4 hours pay $843 in student fees.
   3. Students enrolled in 5 or more hours pay $993 in student fees.
   4. The program should also display a message to students who have not enrolled in any classes:
   5. “You are not enrolled in any classes right now.”
2. KSU’s Registrar’s Office has asked for your assistance in writing a program to help students when registering for courses each semester.
   1. The cost of KSU’s tuition is determined by the number of credit hours a student enrolls in.
   2. Using the chart below, write a complete program that uses conditional statement to set the value of a tuition variable to what that student will owe based on the number of hours a student is registered hour as indicated by user input.
   3. NOTE: For this problem you can assume that all students are enrolled in a minimum of 12 hours.

|  |  |
| --- | --- |
| Number of Credit Hours | Cost |
| 12 | $2224 |
| 13 | $2410 |
| 14 | $2595 |
| 15 or more | $2718 |

20) A local charity classifies those who donate to it using the following table, only whole number donations are allowed. The charity has asked for your help to write a program that determines what classification a donor is based on their donation.

|  |  |
| --- | --- |
| Donation Amount | Class |
| $1 – $999 | Generous |
| $1,000 – $1,999 | Bronze |
| $2,000 – $2,999 | Silver |
| $3,000 – $3,999 | Gold |
| $4,000 – $4,999 | Platinum |
| $5,000 or more | Diamond |

Write a complete program that declares a variable (of appropriate data type), asks the user how much they are going to donate, determines their classification and prints a thank you statement showing their donation amount and classification using a SWITCH statement with appropriate CASES.

21) A company that sells widgets for $10 each has approached you for help writing a program. They offer quantity discounts, based on the quantity, rounding down to the nearest value of 100 to compute the discount.

1-99 – no discount

100 - 199 – 10% discount

200 – 299 – 20% discount

300 – 399 – 30% discount

400 – 499 – 40% discount

500 or more – 50% discount

Write a complete program that declares a variable (of appropriate data type), asks the user how many widgets they are going to purchase, determines and prints their discount and prints their total price using a SWITCH statement with appropriate CASES.

22) A software company sells a program that retails for $100 each. A $50 discount is given for every ten (10) copies purchased at the same time.

|  |  |
| --- | --- |
| Copies Purchased | Discount |
| 1-9 | $0 |
| 10-19 | $50 |
| 20-29 | $100 |
| 30-39 | $150 |
| 40-49 | $250 |
| 50 or more | $300 |

Write a complete program that declares a variable (of appropriate data type), asks the user how many copies they are going to purchase, determines their discount and prints their total cost using a SWITCH statement with appropriate CASES.

23) The McHamberger® Corporation has tasked you with writing a new Switch/Case statement that takes in the input from the user (as a whole number, so use an appropriate data type) and prints a statement indicating what item was ordered by the user. The users can choose from a 1) McGrease®™ Meal, 2) McMilk Shake or 3) McChik Tenders.

24) The McHamberger® Corporation has tasked you with writing a new Switch/Case statement that takes in the input from the user (as a character, so use an appropriate data type) and prints a statement indicating what the user’s payment type will be for their order. The users can choose from a A) Cash, B) MasterCard or C) Visa

25) The McHamberger® Corporation has tasked you with writing a new Switch/Case statement that takes in the input from the user (as a whole number, so use an appropriate data type) and prints a statement indicating what item was ordered by the user. The users can choose from a 1)McHealthy Meal, 2) McSlimQuick or 3) McCaesar Salad.

26) The McHamberger® Corporation has tasked you with writing a new Switch/Case statement that takes in the input from the user (as a whole number, so use an appropriate data type) and prints a statement indicating what the user’s payment type will be for their order. The users can choose from 1) PayPal, 2) bitcoin or 3) Apple Pay

27) The McHamberger® Corporation has tasked you with writing a new Switch/Case statement that takes in the input from the user (as a whole number, so use an appropriate data type) and prints a statement indicating what item was ordered by the user. The users can choose from a 1) McGrease®™ Meal, 2) McMilk Shake or 3) McChik Tenders.

28) The McHamberger® Corporation has tasked you with writing a new program snippet that asks if a customer wants to Supreme Size their order. It should print a message asking the user if they want to Supreme Size the order and then accept either a Y or N as their answer. If the customer answers Y, it should print “Thanks for Supreme Sizing your order, enjoy your meal.” If the customer enters N, it should print “Maybe next time, enjoy your meal.”

29) The McHamberger® Corporation has tasked you with writing a new program snippet that asks if a customer wants to their food for Here or ToGo. It should print a message asking the user if they want to eat here or take their food to go and then accept either a H or T as their answer. If the customer answers H, it should print “Thanks, please have a seat, your food will be ready soon.” If the customer enters G, it should print “Please wait for your food at the counter and have a nice day.”

30) The McHamberger® Corporation has tasked you with writing a new program snippet that asks if a customer wants a receipt printed after placing an order. It should print a message asking the user if they would like a receipt then accept either a true or false as their answer. If the customer answers true, it should print “Receipt has been printed, thanks for your patronage.” If the customer enters false, it should print “The trees thank you, have a good day.”

31) The McHamberger® Corporation has tasked you with writing a new program snippet that asks if a customer wants to donate to their charity for weight loss. It should print a message asking the user if they want to donate and then accept either a Y or N as their answer. If the customer answers Y, it should print “Thanks for your donation, enjoy your meal.” If the customer enters N, it should print “Maybe next time, have a good day.”

32) Otis Elevator has contacted you to help write a piece of code to display a warning if the elevator weight limit of 5000 is exceeded, variable name is elevWeightLimit.  Write the statements that print "Weight limit exceeded, elevator stalled." if the condition is met, otherwise it should print "Proceeding to selected floor.".

33) The Weather Channel has contacted you asking you to help write a piece of code that prints a warning if the pollen count, variable named pollenCount, is greater than 100.  If the condition is met, it should print "Allergy alert, take precautions" otherwise it should print "No allergy alert.".

34) KSU Bookstore has contacted you to help write a piece of code to determine the total price of purchases, variable is named totalPrice, if the total price is less than 10.00, you need to add 3% to the total and print it. Otherwise just print the total price.  Both statements should state "Total price is: " before printing the total.

35) FEMA has asked for your help in writing a program that helps determine if persons are eligible for the COVID-19 vaccine. You must write a complete program that uses an IF...ELSE...IF and asks for the age of the user and determines if they are eligible for special assistance – those younger than 18 and those greater than 55.  Based on that, print out “You are eligible” or “You are not eligible”. You should include code to catch if invalid ages are entered (below 0 and greater than 125).

36) HAL has asked for your help in writing a program that helps their AI system learn about number order.  You must write a complete program that uses an IF...ELSE...IF that reads in three numbers, individually, and prints out the middle value if they are in ascending order. You can assume that the user will only enter valid input for the program.

37) The Registrar’s Office has asked for your help in writing a program that helps determine when students will be allowed back on campus for Fall 2021 semester.  You must write a complete program that uses an IF...ELSE...IF and asks a student for their KSU # and prints out whether it is in group 1, 2 or 3.  Group 1 is 00000000-33333333, Group 2 is 3333333334-666666666, Group 3 is 666666667 to 999999999. You can assume that the user will only enter valid input for the program.

38) Registrar’s Office at KSU has asked for your assistance with writing a companion program to OwlExpress to assist students in registering for classes. You must write a complete program that uses a SWITCH statement to allow a user to select from a list of five topics to study (see sample out, you can use any five topics you want), uses a Character as the condition to select the user’s chosen topic and prints a statement showing what choice the user input.   Make sure to include a statement that catches any invalid choices made by the user and prints a statement stating “Invalid Choice.”.

Graphical user interface, text, application

Description automatically generated

39) College of Music at KSU has asked for your assistance with writing a program to assist visitors in selecting their favorite genre of music. Write a complete program that uses a SWITCH statement to allow a user to select from a list of five music genres to listen to (see sample below, you can use any five musical genres you like), uses a String as the condition to select the user’s chosen topic and prints a statement showing what choice the user input. Make sure to include a statement that catches any invalid choices made by the user and prints a statement stating “Invalid Choice.”.

A close up of a logo

Description automatically generated

40) Housing at KSU has asked for your assistance with writing a companion program to OwlExpress to assist students in registering for housing. Write a complete program that uses a SWITCH statement to allow a user to select from a list of five student classifications to list on their application for housing (i.e.: see example below), uses an Integer as the condition to select the user’s chosen topic and prints a statement showing what choice the user input.  Make sure to include a statement that catches any invalid choices made by the user and prints a statement stating “Invalid Choice.”.

Graphical user interface, text, application

Description automatically generated

41) A local travel company has asked you to help them write a program to send custom welcome messages to each passenger when they register to board the ship.  Write a complete program (you must declare variables passengerName and numberOfCruises) that asks the passenger their name and how many times they’ve cruised before.  If this is the customer’s first cruise, print “Welcome aboard!  Please join us for free drinks on the Lido deck.”  If the customer has cruised at least 5 times, print “Welcome back!  Please join us for dinner and dancing in the Aft lounge tonight.”  Otherwise, it should print “Welcome back!  We’re glad to have you aboard.”

42) A local restaurant has asked you to help them write a program to send custom welcome messages to each guest when they check in at the kiosk.  Write a complete program (you must declare variables guestName and diningHistory) that asks the customer their name and how many times they’ve dined at the restaurant before.  If this is the customer’s first visit, print “Welcome!  We’re so glad you’re dining with us.”  If the customer has dined at least 6 times, print “Thank you for being a dining club member.  Please enjoy complementary dessert.”  Otherwise, it should print “Welcome back!  We’re glad to have you dining with us today.”

43) A local hotel has asked you to help them write a program to send custom welcome messages to each customer when they check in at the kiosk. Write a complete program (you must declare variables guestName and guestHistory) that asks the customer their name and how many times they’ve stayed at the hotel before. If this is the customer’s first stay, print “Welcome! We’re so glad you’re staying with us.” If the customer has stayed at least 10 times, print “Thank you for being a vacation club member. Please enjoy the complementary gift basket we’ve left in your room.” Otherwise, it should print “Welcome back! We’re glad to have you staying with us today.

44) A local airline has asked you to help them write a program to send custom welcome messages to each customer when they check in at the kiosk to board their flight.  Write a complete program (you must declare variables called passengerName and flightHistory) that asks the customer their name and how many times they’ve flown before.  If this is the customer’s first flight, print “Welcome!  We’re so glad you’re flying with us.”  If the customer has flown at least 4 times, print “Thank you for being a fight club member.  Please enjoy complementary beverages during our in-flight snack service.”  Otherwise, it should print “Welcome back!  We’re glad to have you flying with us today.”

45) A local car rental company has asked you to help them write a program to send custom welcome messages to each customer when they register to pick up their car.  Write a complete program (you must declare variables called customerName and rentalHistory) that asks the customer their name and how many times they’ve cruised before.  If this is the customer’s first rental, print “Welcome!  We’re so glad you’re driving with us.”  If the customer has rented at least 3 times, print “Thank you for being a preferred customer.  You’ll find a prepaid gas card in the glove box.”  Otherwise, it should print “Welcome back!  Were glad to have you driving with us today.”

46) Write a complete program that asks the user for her/his name and reads it in. If the user name is either “I’munique” or “Elizabreth”, print “Why would your parents name you that?” Otherwise, print “Well, hello!” And yes, those are real baby names, along with “Sssst”, “Abcde”, “Panthy”, “Melanomia” and “Derfla” (Alfred spelled backwards).

47) Write a complete program that asks the user to enter a value between 1-10 and reads that number in. If the user enters something smaller than 1, it should print “Too low!”. If the number is between 2 and 8, print “I like this number”. If the number is greater than 10, it should print “Too high!”. Otherwise, it should print “Rock on, my friend – Rock on...”

48) Write a complete program that asks the user for her/his login and also the password. If the user enters the login/name “Reaper” and the password “cowbell”, print “We need more cowbell, baby!” Otherwise, you should print “I don’t know you. Try again later.”

49) Write a complete program that asks the user for their GPA (Grade Point Average) and reads that number in. If the user’s GPA is between 2.0 and 3.9, print “You can graduate.” If the GPA is 4.0 print “You’re my hero!” Otherwise, it should print “Raise your GPA!”