LAB WEEK 5

SEP 2025 SEMESTER

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BACHELOR OF COMPUTER SCIENCE

DATA SCIENCE

TEB2164

Contents

Code

Activity 1

```
#Activity 1
exam_score <- c(33, 24, 54, 94, 16, 89, 60, 6, 77, 61, 13, 44, 26, 24, 73, 73, 90,
39, 90, 54)

grades <- ifelse(exam_score >= 90 & exam_score <= 100, "A",
                 ifelse(exam_score >= 80 & exam_score <= 89, "B",
                        ifelse(exam_score >= 70 & exam_score <= 79, "C",
                               ifelse(exam_score >= 60 & exam_score <= 69, "D",
                                      ifelse(exam_score >= 50 & exam_score <= 59,
"E", "F")))))

passed <- ifelse(exam_score > 49, TRUE, FALSE)

grade_count <- table(grades)

student <- list(Scores = exam_score, #assign name
                Grades = grades,
                Pass = passed,
                Grade_Count = grade_count)

print(student)
```

Activity 2

```
#Activity 2
exam_score <- c(33, 24, 54, 94, 16, 89, 60, 6, 77, 61, 13, 44, 26, 24, 73, 73, 90,
39, 90, 54)

grades <- character(length(exam_score))

A <- exam_score >= 90 & exam_score <= 100
B <- exam_score >= 80 & exam_score <= 89
C <- exam_score >= 70 & exam_score <= 79
D <- exam_score >= 60 & exam_score <= 69
E <- exam_score >= 50 & exam_score <= 59
F <- exam_score <= 49

grades[A] <- "A"
grades[B] <- "B"
grades[C] <- "C"
grades[D] <- "D"
grades[E] <- "E"
grades[F] <- "F"

passed <- exam_score > 49

grade_count <- c(A = sum(A),
                 B = sum(B),
                 C = sum(C),
                 D = sum(D),
                 E = sum(E),
                 F = sum(F))

student <- list(Scores = exam_score, #assign name
                Grades = grades,
                Pass = passed,
                Grade_Count = grade_count)
```

```
print(student)
```

Activity 3

```
#Activity 3
#Create list from 2
student_list <- list(
  name = c("Robert", "Hemsworth", "Scarlett", "Evans", "Pratt", "Larson",
"Holland", "Paul", "Simu", "Renner"),
  exam_score = c(59, 71, 83, 68, 65, 57, 62, 92, 92, 59)
)

#Append Chem and Phys scores
student_list$Chemistry <- c(59, 71, 83, 68, 65, 57, 62, 92, 92, 59)
student_list$Physics <- c(89, 86, 65, 52, 60, 67, 40, 77, 90, 61)

#Count students failed
fail_chemistry <- sum(student_list$Chemistry <= 49)
fail_physics <- sum(student_list$Physics <= 49)

#Find highest scores
highest_chemistry <- max(student_list$Chemistry)
highest_physics <- max(student_list$Physics)

best_chemistry <- student_list$name[student_list$Chemistry == highest_chemistry]
best_physics <- student_list$name[student_list$Physics == highest_physics]

#Output
print("==CHEMISTRY==")
cat("Number of students Fail (Chemistry): ", fail_chemistry, "\n")
cat("Highest score (Chemistry): ", highest_chemistry, "by", paste(best_chemistry,
collapse = " and "), "\n")

print("==PHYSICS==")
cat("Number of students Fail (Physics): ", fail_physics, "\n")
cat("Highest score (Physics): ", highest_physics, "by", paste(best_physics,
collapse = " and "), "\n")
```