

Week 2 Lab Tutorial: Basic C and Control Flow – Suggested Solutions

Lab Questions

Q1: (computeGrade)

```
#include <stdio.h>
int main()
{
    int studentNumber = 0, mark;

    printf("Enter Student ID: \n");
    scanf("%d", &studentNumber);
    while (studentNumber != -1)
    {
        printf("Enter Mark: \n");
        scanf("%d", &mark);
        switch ((mark+5) / 10) {
            case 10:
            case 9:
            case 8: printf("Grade = A\n");
                    break;
            case 7: printf("Grade = B\n");
                    break;
            case 6: printf("Grade = C\n");
                    break;
            case 5: printf("Grade = D\n");
                    break;
            default: printf("Grade = F\n");
        }
        printf("Enter Student ID: \n");
        scanf("%d", &studentNumber);
    }
    return 0;
}
```

Q2: (printAverage)

```
#include <stdio.h>
int main()
{
    int total, count, lines, input;
    double average;
    int i;

    printf("Enter number of lines: \n");
    scanf("%d", &lines);
    for (i = 0; i < lines; i++) {
        total=0; count=0;
        printf("Enter line %d (end with -1): \n", i+1);
        scanf("%d", &input);
        while (input != -1)
        {
            total += input;
            count++;
            scanf("%d", &input);
        }
        average = (double)total/(double)count;
        printf("Average = %.2f\n", average);
    }
    return 0;
}
```

Q3: (printPattern)

```
#include <stdio.h>
int main()
{

```

```

int row, col, height;
int num = 0;

printf("Enter the height: \n");
scanf("%d", &height);
printf("Pattern: \n");
for (row = 0; row < height; row++)
{
    for (col = 0; col < row+1; col++)        // print numbers
        printf("%d", num+1);
    num = (num + 1) % 3;                      // print up to number 3
    printf("\n");
}
return 0;
}

```

Q4: (debugging)

The correct code should be (remove “;” from the while loop):

```

#include <stdio.h>
int main()
{
    char loop;

    printf("Print A-Z alphabets: ");
    for (loop='A'; loop<='Z'; loop++)
        putchar(loop);
    return 0;
}

```