

# AUTO ATTENDANCE

## IT 314

## SOFTWARE ENGINEERING

## GROUP 6

## LAB 4

### 1.TOOLS AND TECHNOLOGY

- 1) **Front-end:** We are planning to use html, css and javascript and also to make it responsive as well as beautiful we are planning to use designing framework like bootstrap, tailwind css.
- 2) **Backend:** To make backend we are planning to use django framework, as it is fast, multithreaded, scalable, secured and provides ready made codes as well as efficient modules and easy database integration.
- 3) **Database:** We are planning to use open source NoSQL database MongoDB, as it is flexible and scalable.
- 4) **IDE:** We are planning to use an open-source IDE namely Visual Studio Code integrated with Github Co-pilot.

## 2.EFFORT ESTIMATION USING USE CASE SIZE POINT

### 2.1 Unadjusted Use-Case Weight (UUCW)

Use-Case Complexity	Number of Transactions	Use-Case Weight
Simple	$\leq 3$	5
Average	4 to 7	10
Complex	$> 7$	15

Use case name	Number of transaction	Category
Authenticate	2	Simple
Student Login	2	Simple
View Course (For Students)	1	Simple
Mark Attendance	1	Simple
Instructor Login	2	Simple
Create New Course	1	Simple
View Course (For Instructors)	1	Simple
Open Attendance	1	Simple
Download Data	1	Simple

Use-Case Complexity	Weight	Number of Use-Cases	Product
Simple	5	9	45
Average	10	0	0
Complex	15	0	0
Unadjusted Use-case Weight (UUCW)			45

## 2.2 Unadjusted Actor Weight (UAW)

Actor Complexity	Example	Actor Weight
Simple	A System with defined API	1
Average	A System interacting through a Protocol	2
Complex	A User interacting through GUI	3

Actor Name	Category	Weight
Instructor	Complex	3
Student	Complex	3
Unadjusted Actor Weight (UAW)		6

## 2.3 Unadjusted Use Cast Point (UUCP)

Now, Unadjusted Use Case Point = Unadjusted Actor Weight(UUCW) + Unadjusted Use Case Weight(UAW)

**Unadjusted Use Case Point = 6 + 45 = 51**

## 2.4 Technical Complexity Factor (TCF)

Factor	Description	Weight (W)	Rated Value (0 to 5) (RV)	Impact (I = W × RV)
T1	Distributed System	2.0	4	8
T2	Response time or throughput performance objectives	1.0	5	5
T3	End user efficiency	1.0	4	4
T4	Complex internal processing	1.0	4	4
T5	Code must be reusable	1.0	4	4
T6	Easy to install	.5	1	0.5
T7	Easy to use	.5	4	2
T8	Portable	2.0	3	6
T9	Easy to change	1.0	4	4
T10	Concurrent	1.0	5	5

T11	Includes special security objectives	1.0	5	5
T12	Provides direct access for third parties	1.0	2	2
T13	Special user training facilities are required	1.0	0	0
Total Technical Factor (TFactor)				49.5

Technical Complexity Factor can be calculated as follows:

$$\therefore \text{TCF} = 0.6 + (0.01 \times \text{TFactor})$$

$$\therefore \text{TCF} = 0.6 + 0.01 \times 49.5$$

$$\therefore \text{TCF} = 0.6 + 0.495$$

$$\therefore \text{TCF} = 1.095$$

## 2.5 Environmental Complexity Factor (EF)

Factor	Description	Weight (W)	Rated Value (0 to 5) (RV)	Impact (I = W × RV)
F1	Familiar with the project model that is used	1.5	5	7.5
F2	Application experience	.5	2	1
F3	Object-oriented experience	1.0	3	3
F4	Lead analyst capability	.5	4	2
F5	Motivation	1.0	3	3

F6	Stable requirements	2.0	4	8
F7	Part-time staff	-1.0	0	0
F8	Difficult programming language	-1.0	2	-2
Total Environment Factor (EFactor)				22.5

**Environmental Factor =  $1.4 + (-0.03 \times \text{EFactor}) = 0.725$**

Factor	Description	Weight
UUCP	Unadjusted use case point	51
TCF	Technical Complexity Factor	1.095
EF	Environmental factor	0.725

**UCP = UUCP  $\times$  TCF  $\times$  EF**

**UCP = 40.487625**

**Total Working Hours = UCP  $\times$  Working Hours/UCP**

**Working Hours/UCP = 15**

**Total Working Hours = 40.487625  $\times$  15**

**Total Working Hours = 607.3 Hours**