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Dipartimento di Ingegneria dell’Informazione ed Elettrica e Matematica Applicata

Corso di Laurea in Ingegneria Informatica

**Basi di Dati 2020/2021**

**Canale I-Z**

Project Work

**SportClub**

Gruppo n. **16 – IZ**

|  |  |  |  |  |
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**Anno accademico 2020-2021**

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# Descrizione della realtà di interesse

Titolo: **SportClub**

SportClub è una piattaforma realizzata da una startup italiana dedicata a sportivi e a strutture, club, federazioni attive nel settore. Consente agli sportivi di cercare, prenotare e pagare corsi e servizi offerte dalle diverse strutture, consentendo anche di invitare i propri amici a condividere le stesse passioni. La start-up ha richiesto la creazione della base di dati per supportare tale piattaforma.

•Per gli utenti della piattaforma si intende memorizzare le informazioni anagrafiche, l’account (username e password), i recapiti, i metodi di pagamento usati, le discipline preferite, il livello di attività/esperienza per ogni disciplina (e.g., novizio, amatoriale, agonistico, etc.)

•Esistono diverse società (e.g., palestre, club, federazioni, etc.) e professionisti che possono offrire servizi e/o strutture. Ad esempio, possono offrire corsi, lezioni, ma anche la possibilità di prenotare campi da calcio, da tennis, etc. Si intendono memorizzare le informazioni su professionisti e società, incluse le discipline nelle quali offrono i propri servizi.

•I servizi possono essere: corso; lezione una-tantum; prenotazione struttura; consulenza.

•Per ogni servizio si vogliono memorizzare il titolo, la descrizione, la durata, il costo, la disciplina, il professionista eventualmente coinvolto, la struttura eventualmente coinvolta.

•Un servizio può essere acquistato da un utente; si intendono memorizzare le informazioni sugli acquisti degli utenti.

•Per alcuni servizi, è possibile invitare i propri amici (altri utenti della piattaforma). Ad esempio, è possibile prenotare un campo da calcio e invitare i propri amici per organizzare una partita. Per l’invito si vuole memorizzare l’utente che l’ha creato, la descrizione dell’evento che si sta organizzando, il servizio coinvolto, gli invitati.

•Un invitato può accettare o meno l’invito. Si vuole tenere traccia dell’invito accettato o meno, inclusa la data di accettazione o rifiuto.

# Analisi delle specifiche

|  |  |  |
| --- | --- | --- |
| ***Workpackage*** | ***Task*** | ***Responsabile*** |
| **WP0** | Analisi delle specifiche | Intero Gruppo |

## Glossario dei termini

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Termine** | **Descrizione** | **Sinonimi** | **Collegamenti** |
| **1** | Utente | Persona che usufruisce dei servizi offerti dalla società. | Invitato, amici, sportivo | Invito, Acquisto |
| **2** | Società | Organizzazione sportiva che offre servizi e/o strutture | Club, federazioni | Servizio, Struttura |
| **3** | Servizio | I servizi possono essere: corso; lezione una-tantum; prenotazione struttura; consulenza, offerti dal professionista o dalla società | - | Società, Professionista, Acquisto, Struttura |
| **4** | Invito | Richiesta di partecipazione ad un evento che deve essere tracciato | - | Utente |
| **5** | Acquisto | Il servizio che viene acquistato da un utente | Prenotazione | Utente, Servizio |
| **6** | Professionista | Persona specializzata che offre servizi e/o strutture | - | Servizio, Struttura |
| **7** | Struttura | Struttura messa a disposizione dal professionista o dalla società per l’utente | - | Servizio, Professionista, Società |

## Strutturazione dei requisiti in frasi

### Frasi di carattere generale

SportClub è una piattaforma realizzata da una startup italiana dedicata a sportivi e a strutture, club, federazioni attive nel settore e consente agli sportivi di cercare, prenotare e pagare corsi e servizi offerte dalle diverse strutture, di invitare i propri amici a condividere le stesse passioni.

### Frasi relative a utente

Per gli utenti della piattaforma rappresentiamo le informazioni anagrafiche, l’account (username e password), i recapiti, i metodi di pagamento usati, le discipline preferite, il livello di attività/esperienza per ogni disciplina (e.g., novizio, amatoriale, agonistico, etc.).

### Frasi relative a società

Per le società (e.g., palestre, club, federazioni, etc.) vogliamo rappresentare le rispettive informazioni, i servizi e/o strutture offerti, discipline incluse.

### Frasi relative a servizio

Per ogni servizio vogliamo rappresentare il titolo (e.g., corso, lezione una-tantum, prenotazione struttura, consulenza), la descrizione, la durata, il costo, la disciplina, il professionista eventualmente coinvolto, la struttura eventualmente coinvolta.

### Frasi relative a invito

Per l’invito è di interesse rappresentare l’utente che l’ha creato, la descrizione dell’evento che si sta organizzando, il servizio coinvolto, gli invitati. Inoltre, si vuole tenere traccia dell’invito accettato o meno, inclusa la data di accettazione o rifiuto.

### Frasi relative per acquisto

Per l’acquisto vogliamo rappresentare le informazioni relative al servizio acquistato dagli utenti.

### Frasi relative a professionista

Per il professionista vogliamo rappresentare le sue informazioni, l’eventuale società che lo coinvolge, i servizi e/o strutture offerti, discipline incluse.

### Frasi relative a struttura

Per la struttura vogliamo rappresentare le varie tipologie (e.g., campi da calcio, da tennis, etc.) offerte dalla società o dal professionista.

## Identificazione delle operazioni principali

**Operazione 1:** inserisci un nuovo utente indicando tutti i dati (in media 50 volte al giorno)

**Operazione 2:** inserisci una nuova società indicando i suoi servizi, i suoi dati e i professionisti eventualmente coinvolti (in media 25 volte a settimana)

**Operazione 3:** inserisci un nuovo acquisto, indicando l’utente che ha acquistato il servizio e la società che lo eroga, indicando eventualmente il professionista coinvolto, la lista degli utenti che partecipano all’evento, la durata del servizio e il suo costo totale (in media 200 volte al giorno)

**Operazione 4:** per ogni servizio desiderato stampa la società o il professionista che lo offrono al costo minore (in media 200 volte al giorno)

**Operazione 5:** per ogni società stampa l'elenco dei servizi che offre in merito ad una specifica località indicata dall’utente (in media 200 volte al giorno)

**Operazione 6:** scelti servizio, località, data e ora, stampa l'elenco dei professionisti disponibili (in media 100 volte al giorno)

**Operazione 7:** stampa l’elenco dei servizi offerti, dal più richiesto al meno richiesto, identificando il numero degli acquisti per ogni servizio (in media 1 volta al giorno)

# Progettazione Concettuale

|  |  |  |
| --- | --- | --- |
| ***Workpackage*** | ***Task*** | ***Responsabile*** |
| **WP1** | Progettazione Concettuale | Savarese Marco |

## Schema Concettuale

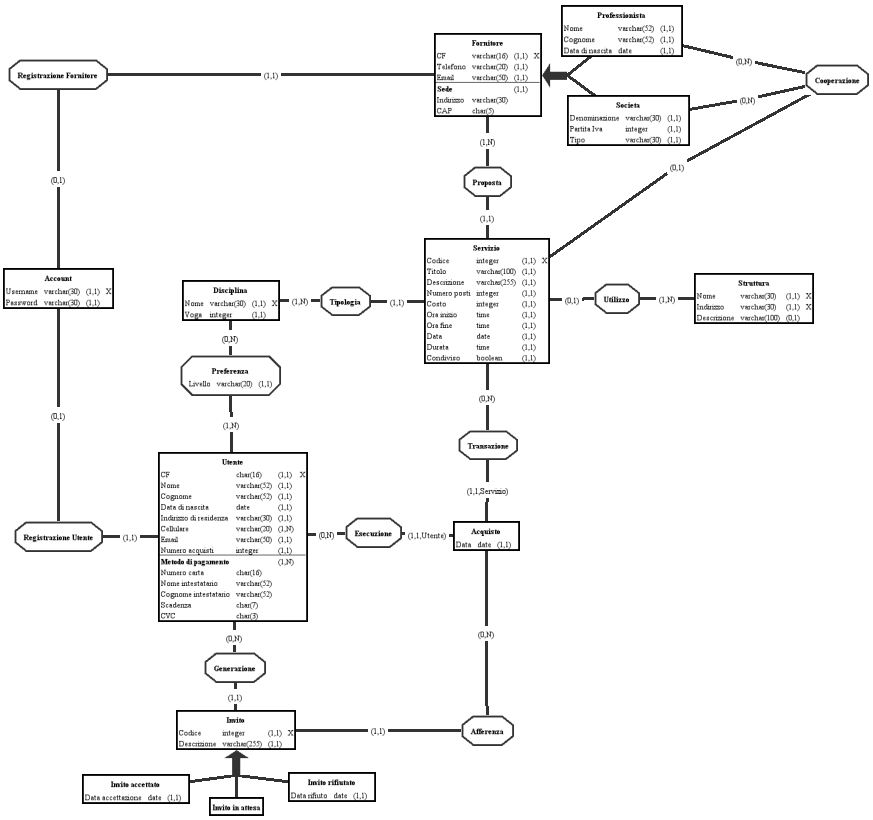


Figura . Schema E-R

### Note sullo schema E-R

Col supporto del glossario dei termini e delle frasi individuate nel WP0, siamo giunti alla rappresentazione del seguente schema scheletro:

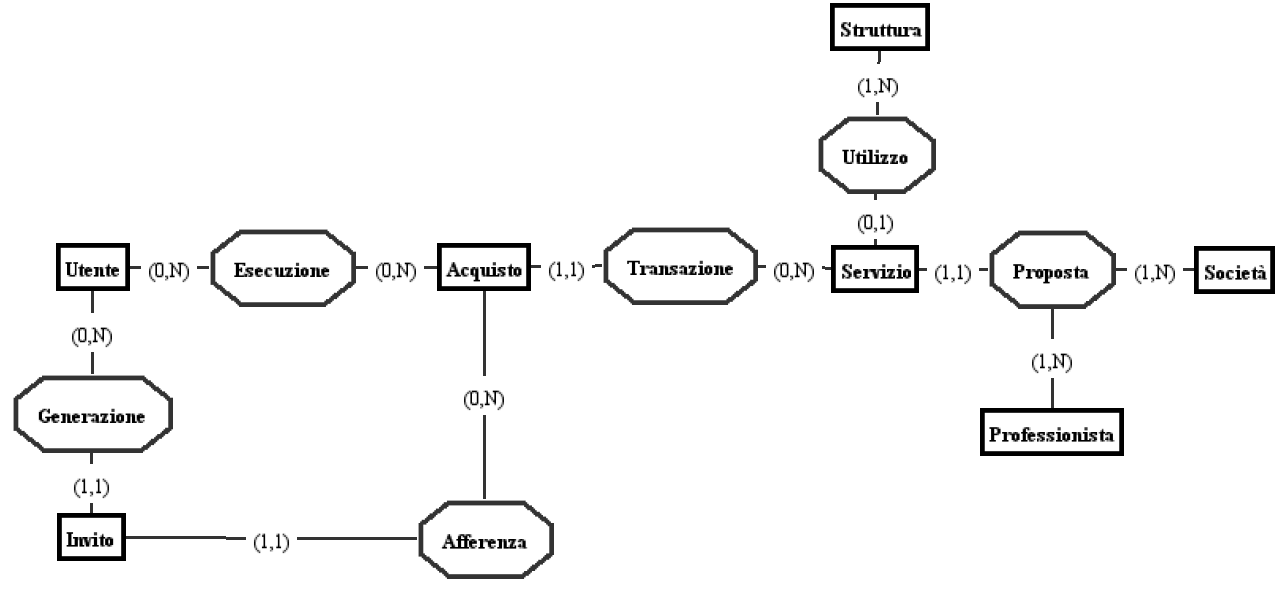


Figura 2. Schema scheletro

La strategia adottata per la descrizione della nostra realtà di interesse è mista. Dopo la definizione dello schema scheletro, siamo andati avanti sia per raffinamenti successivi, sia per estensioni dello schema (come, ad esempio, l’individuazione del concetto di “Account” o la necessità di rappresentare “Disciplina” come entità) per giungere poi alla definizione finale dello stesso.

## Design Pattern

### Pattern evoluzione di un concetto

Vogliamo rappresentare il fatto che l’invito subisce un’evoluzione nel tempo, in quanto può essere accettato, rifiutato o in attesa. Pertanto, abbiamo tante generalizzazioni quanti sono gli stati dell’invito.

**

Figura 3. Schema precedente all’applicazione del Pattern Evoluzione di un concetto

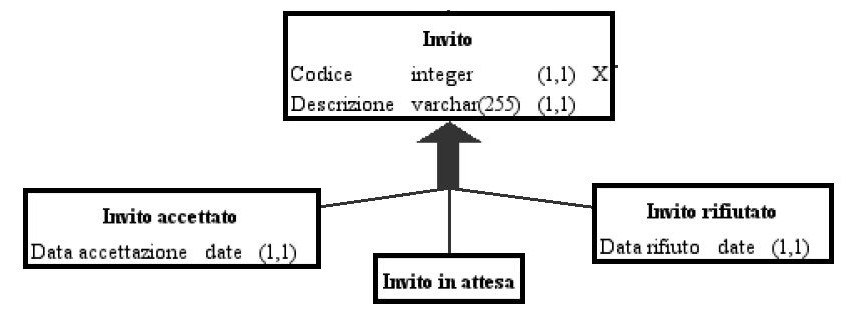


Figura 4. Schema successivo all’applicazione del Pattern Evoluzione di un concetto

### Pattern reificazione di un attributo (disciplina)

Nel momento in cui stavamo arricchendo di attributi l’entità “utente”, abbiamo introdotto “disciplina”. Essa permette all’utente di decidere quale siano le sue discipline preferite e di scegliere, per ognuna di esse, il livello di esperienza. Continuando il processo iterativo di raffinamento, abbiamo notato che “disciplina” era un concetto piuttosto rilevante per la nostra applicazione, ragione per la quale abbiamo deciso di reificare tale concetto, inizialmente concepito come attributo.

Infine, all’entità “disciplina” abbiamo introdotto l’attributo voga.

![Immagine che contiene testo, ricevuta

Descrizione generata automaticamente](data:image/jpeg;base64,/9j/4AAQSkZJRgABAQEAeAB4AAD/4RDoRXhpZgAATU0AKgAAAAgABQESAAMAAAABAAEAAAE7AAIAAAAGAAAIVodpAAQAAAABAAAIXJydAAEAAAAMAAAQ1OocAAcAAAgMAAAASgAAAAAc6gAAAAgAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAE1hcmNvAAAFkAMAAgAAABQAABCqkAQAAgAAABQAABC+kpEAAgAAAAMxMQAAkpIAAgAAAAMxMQAA6hwABwAACAwAAAieAAAAABzqAAAACAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA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Figura 5. Schema precedente all’applicazione del Pattern reificazione di un attributo (disciplina)

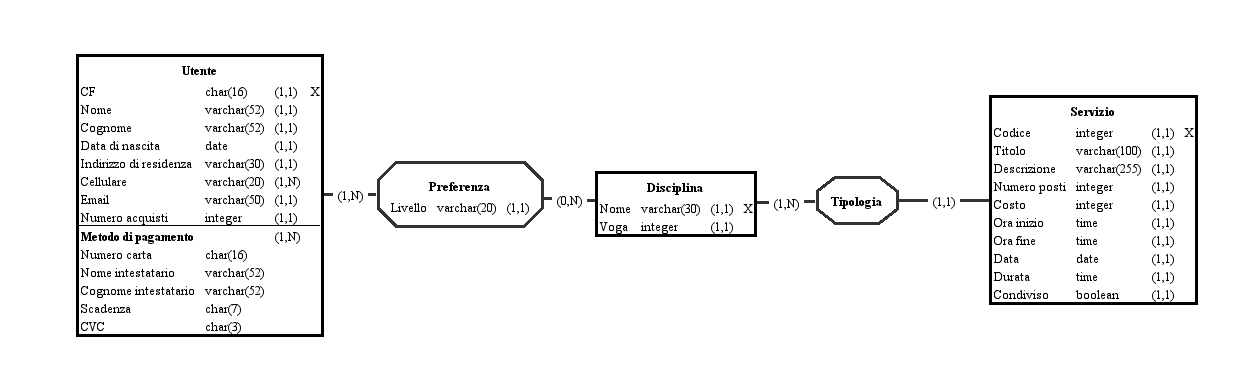


Figura 6. Schema successivo all’applicazione del Pattern reificazione di un attributo (disciplina)

### Pattern reificazione di un attributo (account)

Inizialmente, analizzando le frasi relative a “utente”, abbiamo inserito in tale entità l’attributo composto username + password. Successivamente, comprendendo meglio la traccia e considerando l’associazione dello stesso attributo composto anche all’entità “Fornitore”, abbiamo ritenuto necessaria la reificazione dell’attributo.

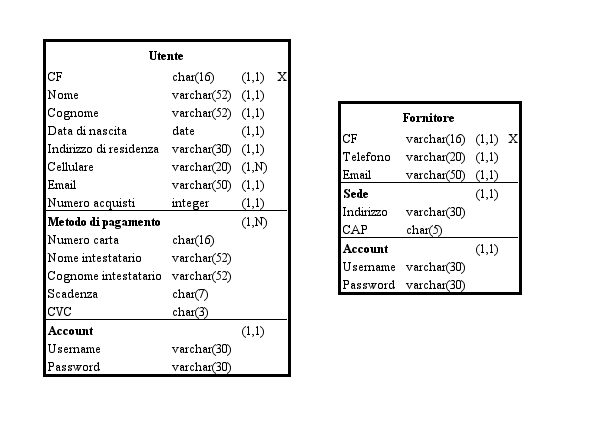


Figura 7. Schema precedente all’applicazione del Pattern reificazione di un attributo (account)

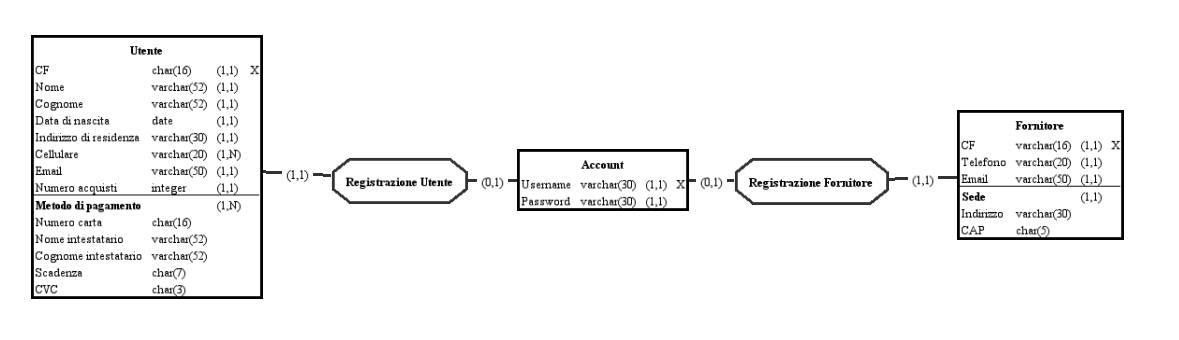


Figura 8. Schema successivo all’applicazione del Pattern reificazione di un attributo (account)

## Dizionario dei Dati

|  |  |  |  |
| --- | --- | --- | --- |
| **Entità** | **Descrizione** | **Attributi** | **Identificatore** |
| Utente | Persona registrata alla piattaforma che acquista servizi e in alcuni casi genera inviti | CF, Nome, Cognome, Data di nascita, Indirizzo di residenza,  Cellulare, Email, Numero acquisti, Metodo di Pagamento (Numero carta, Nome intestatario, Cognome intestatario, Scadenza, CVC) | CF |
| Acquisto | Acquisto effettuato da un utente | Data | Utente (identificatore esterno) + Servizio (identificatore esterno) |
| Servizio | Servizio offerto da un fornitore | Codice, Titolo, Descrizione, Numero posti, Costo, Ora inizio, Ora fine, Data, Durata, Condiviso | Codice |
| Disciplina | Disciplina di un servizio e/o preferita da un utente | Nome, Voga | Nome |
| Fornitore | Fornitore che offre servizi e/o strutture | CF, Telefono, Email,  Sede (Indirizzo, CAP) | CF |
| Società | Società che offre servizi e/o strutture | Denominazione, Partita Iva, Tipo, CF, Telefono, Email,  Sede (Indirizzo, CAP) | CF |
| Professionista | Persona che offre servizi e/o strutture per mezzo di una società o autonomamente | Nome, Cognome, Data di nascita, CF, Telefono, Email,  Sede (Indirizzo, CAP) | CF |
| Struttura | Luogo fisico in cui si svolge un servizio | Nome, Indirizzo, Descrizione | Nome + Indirizzo |
| Account | Credenziali di accesso alla piattaforma | Username, Password | Username |
| Invito | Invito di un utente per altri utenti per la partecipazione ad un servizio | Codice, Descrizione | Codice |
| Invito accettato | Invito accettato dall’utente invitato | Data accettazione, Codice, Descrizione | Codice |
| Invito rifiutato | Invito rifiutato dall’utente invitato | Data rifiuto, Codice, Descrizione | Codice |
| Invito in attesa | Invito che non è stato accettato o rifiutato | Codice, Descrizione | Codice |

Tabella 1. Dizionario dei dati – Entità

|  |  |  |  |
| --- | --- | --- | --- |
| **Relazioni** | **Descrizione** | **Entità Coinvolte** | **Attributi** |
| Generazione | Associa un utente a un invito | Utente (0,N), Invito (1,1) |  |
| Afferenza | Associa un invito a un determinato acquisto | Invito (1,1), Acquisto (0,N) |  |
| Registrazione Utente | Associa un utente a un account | Utente (1,1), Account (0,1) |  |
| Esecuzione | Associa l’utente a un acquisto da egli effettuato | Utente (0,N), Acquisto (1,1) |  |
| Transazione | Associa un acquisto al servizio disponibile acquistato | Acquisto (1,1), Servizio (0,N) |  |
| Preferenza | Associa all’utente la disciplina preferita | Utente (1,N), Disciplina (0,N) | Livello |
| Tipologia | Associa la disciplina a un servizio | Disciplina (1,N), Servizio (1,1) |  |
| Utilizzo | Associa la struttura ad un servizio | Servizio (0,1), Struttura (1,N) |  |
| Proposta | Associa un servizio a un fornitore | Servizio (1,1), Fornitore (1,N) |  |
| Registrazione Fornitore | Associa un fornitore a un account | Account (0,1), Fornitore (1,1) |  |
| Cooperazione | Associa il professionista con il rispettivo servizio a una società | Professionista (0,N), Società (0,N),  Servizio (0,1) |  |

Tabella 2. Dizionario dei dati - Relazioni

|  |  |  |
| --- | --- | --- |
| ***Workpackage*** | ***Task*** | ***Responsabile*** |
| **WP4** | Regole Aziendali | Paolillo Alessandro |

## Regole Aziendali

|  |
| --- |
| **Regole di Vincolo** |
| **(RV1)** L’utente per poter invitare un altro utente deve aver acquistato un servizio condiviso e la data dell’invito deve essere precedente alla data di inizio del servizio.  **(RV2)** L’username di un account deve essere univoco all’interno dell’applicazione, per cui utenti e fornitori non devono mai avere lo stesso username.  **(RV3)** Un servizio non deve essere più acquistabile quando la data di inizio diventa uguale o precedente alla data attuale oppure quando il numero di occorrenze di “Transazione” relativamente all’acquisto di quel determinato raggiunge “Numero posti”.  **(RV4)** L’ora di fine deve essere successiva all’ora di inizio.  **(RV5)** Ad un professionista che coopera per una società deve essere associato un servizio.  **(RV6)** Un servizio di cooperazione deve essere proposto dalla societa |

Tabella 3. Regole di vincolo

|  |
| --- |
| **Regole di derivazione** |
| **(RD1)** L’ora di fine di un servizio si ottiene sommando la durata all’ora di inizio.  **(RD2)** Il numero di acquisti relativi a ogni singolo utente si ottiene contando le occorrenze di un acquisto.  **(RD3)**  La disciplina più in “Voga” si ottiene contando le occorrenze in transazione relative a quella particolare disciplina. |

Tabella 4. Regole di derivazione

# Progettazione Logica

|  |  |  |
| --- | --- | --- |
| ***Workpackage*** | ***Task*** | ***Responsabile*** |
| **WP2** | Progettazione Logica | Landi Thomas |

## Ristrutturazione Schema Concettuale

### Analisi delle Prestazioni

#### Tavola dei volumi

|  |  |  |
| --- | --- | --- |
| **Concetto** | **Tipo** | **Volume** |
| Fornitore | E | 6800 |
| Professionista | E | 5600 |
| Società | E | 1200 |
| Servizio | E | 8000 |
| Struttura | E | 4400 |
| Disciplina | E | 100 |
| Utente | E | 18000 |
| Account | E | 24800 |
| Acquisto | E | 73000 |
| Invito | E | 65000 |
| Invito accettato | E | 54750 |
| Invito rifiutato | E | 10000 |
| Invito in attesa | E | 250 |
| Cooperazione | R | 3600 |
| Registrazione fornitore | R | 6800 |
| Registrazione utente | R | 18000 |
| Proposta | R | 8000 |
| Tipologia | R | 8000 |
| Utilizzo | R | 7000 |
| Preferenza | R | 54000 |
| Transazione | R | 73000 |
| Esecuzione | R | 73000 |
| Generazione | R | 65000 |
| Afferenza | R | 65000 |

Tabella 5. Tavola dei volumi

#### Tavola delle operazioni

|  |  |  |
| --- | --- | --- |
| **Operazione** | **Tipo** | **Frequenza** |
| Operazione 1: inserisci utente | I | 50/giorno |
| Operazione 2: inserisci società | I | 25/settimana |
| Operazione 3: inserisci acquisto | I | 200/giorno |
| Operazione 4: stampa società più economica per il servizio scelto | I | 200/giorno |
| Operazione 5: stampa elenco servizi | I | 200/giorno |
| Operazione 6: stampa professionisti per un determinato servizio | I | 100/giorno |
| Operazione 7: stampa servizi dal più richiesto | B | 1/giorno |
| Operazione 8: stampa le informazioni su una disciplina (incluso il numero di volte in cui è stata acquistata) | B | 1/settimana |
| Operazione 9: stampa il numero di acquisti di un utente | B | 1/settimana |

Tabella 6. Tavola delle operazioni

## Analisi delle ridondanze

* *Ridondanza 1:* Numero acquisti

L’attributo “Numero acquisti” nell’entità “Utente” è ridondante in quanto è possibile tener traccia di tale informazione contando il numero di occorrenze presenti in “Esecuzione”.

Il vincolo di derivazione coinvolto è il RD2, del tipo “Attributo Derivabile da conteggio di occorrenze”.

* *Ridondanza 2*: Voga

L’attributo “Voga” nell’entità “Disciplina” è ridondante in quanto è possibile tener traccia di tale informazione contando il numero di occorrenze presenti in “Transazione”.

Il vincolo di derivazione coinvolto è il RD3, del tipo “Attributo Derivabile da conteggio di occorrenze”.

* *Ridondanza 3*: Ora fine

L’attributo “Ora fine” nell’entità “Servizio” è ridondante in quanto è possibile ricavare tale informazione dagli attributi “Ora inizio” e “Durata”.

Il vincolo di derivazione coinvolto è il RD1, del tipo “Attributo Derivabile nella stessa entità”: proprio per questo motivo l’analisi della ridondanza risulterebbe abbastanza banale. Inserendo un nuovo servizio, infatti, tale attributo non incide sul numero di accessi, ma solo sulla memoria con una quantità alquanto irrilevante.

### Analisi della ridondanza 1: Numero acquisti

* **Operazione 3: inserire acquisto**

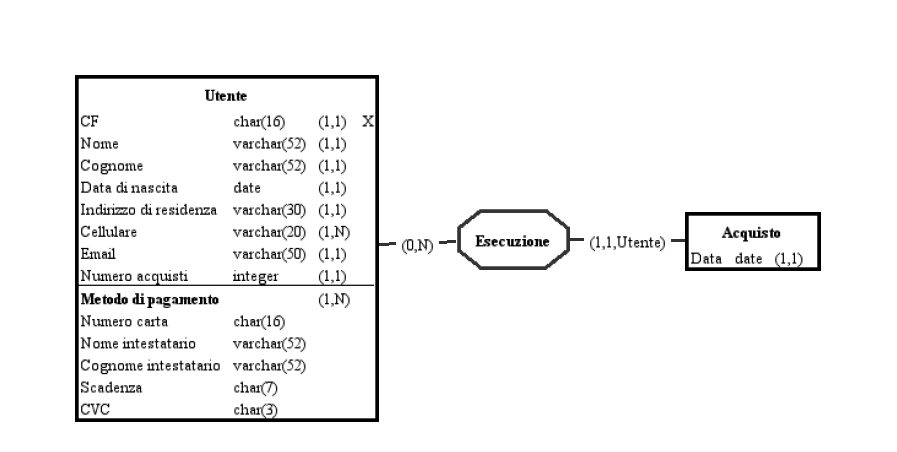
****

Figura 9. Percorso dell’operazione per l’analisi della ridondanza “Numero acquisti”

**Con Ridondanza**

|  |  |  |  |
| --- | --- | --- | --- |
| **CONCETTO** | **COSTRUTTO** | **ACCESSI** | **TIPO** |
| ACQUISTO | E | 1 | S |
| ESECUZIONE | R | 1 | S |
| UTENTE | E | 1 | L |
| UTENTE | E | 1 | S |

**Senza Ridondanza**

|  |  |  |  |
| --- | --- | --- | --- |
| **CONCETTO** | **COSTRUTTO** | **ACCESSI** | **TIPO** |
| ACQUISTO | E | 1 | S |
| ESECUZIONE | R | 1 | S |

* **Operazione 9: stampa il numero di acquisti di un utente**

**Con Ridondanza**

|  |  |  |  |
| --- | --- | --- | --- |
| **CONCETTO** | **COSTRUTTO** | **ACCESSI** | **TIPO** |
| UTENTE | E | 1 | L |

**Senza Ridondanza**

|  |  |  |  |
| --- | --- | --- | --- |
| **CONCETTO** | **COSTRUTTO** | **ACCESSI** | **TIPO** |
| UTENTE | E | 1 | L |
| ESECUZIONE | R | 4 | L |

### 4.2.1.1. Valutazione della ridondanza 1: Numero Acquisti

Dopo aver analizzato le operazioni che coinvolgono la ridondanza si osserva che, con il carico considerato:

* In presenza di ridondanza il costo delle operazioni è di circa 1400 accessi giornalieri (dovuta alla sola analisi dell’operazione 3, in quanto il costo dell’operazione 9 è trascurabile)
* L’occupazione di memoria è di circa 72000 byte
* In assenza di ridondanza il costo delle operazioni è di 800 accessi giornalieri (dovuta alla sola analisi dell’operazione 3, in quanto il costo dell’operazione 9 è trascurabile)

Pertanto, si decide di non mantenere la ridondanza in quanto aumenta il numero di accessi.

### Analisi della ridondanza 2: Voga

* **Operazione 3: Operazione aggiungi acquisto**

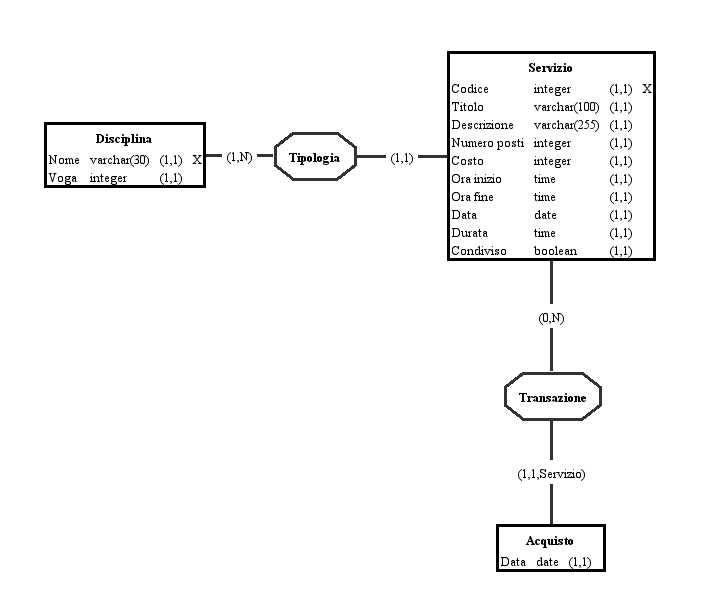
****

Figura 10. Percorso dell’operazione per l’analisi della ridondanza “Voga”

**Con Ridondanza**

|  |  |  |  |
| --- | --- | --- | --- |
| **CONCETTO** | **COSTRUTTO** | **ACCESSI** | **TIPO** |
| ACQUISTO | E | 1 | S |
| TRANSAZIONE | R | 1 | S |
| SERVIZIO | E | 1 | L |
| TIPOLOGIA | R | 1 | L |
| DISCIPLINA | E | 1 | L |
| DISCIPLINA | E | 1 | S |

**Senza Ridondanza**

|  |  |  |  |
| --- | --- | --- | --- |
| **CONCETTO** | **COSTRUTTO** | **ACCESSI** | **TIPO** |
| ACQUISTO | E | 1 | S |
| TRANSAZIONE | R | 1 | S |

* **Operazione 8: stampa le informazioni su una disciplina (incluso il numero di volte in cui è stata acquistata)**

**Con Ridondanza**

|  |  |  |  |
| --- | --- | --- | --- |
| **CONCETTO** | **COSTRUTTO** | **ACCESSI** | **TIPO** |
| DISCIPLINA | E | 1 | L |

**Senza Ridondanza**

|  |  |  |  |
| --- | --- | --- | --- |
| **CONCETTO** | **COSTRUTTO** | **ACCESSI** | **TIPO** |
| DISCIPLINA | E | 1 | L |
| TIPOLOGIA | R | 80 | L |
| SERVIZIO | E | 80 | L |
| TRANSAZIONE | R | 720 | L |

### Valutazione della ridondanza 2: Voga

Dopo aver analizzato le operazioni che coinvolgono la ridondanza si osserva che, con il carico considerato:

* In presenza di ridondanza il costo delle operazioni è di circa 1800 accessi giornalieri (dovuta alla sola analisi dell’operazione 3, in quanto il costo dell’operazione 8 è trascurabile)
* L’occupazione di memoria è di circa 400 byte
* In assenza di ridondanza il costo delle operazioni è di 925 accessi giornalieri (800 per l’operazione 3 e circa 125 per l’operazione 8)

Pertanto, si decide di non mantenere la ridondanza in quanto aumenta il numero di accessi.

## Eliminazione delle generalizzazioni

### Generalizzazione *Fornitore*

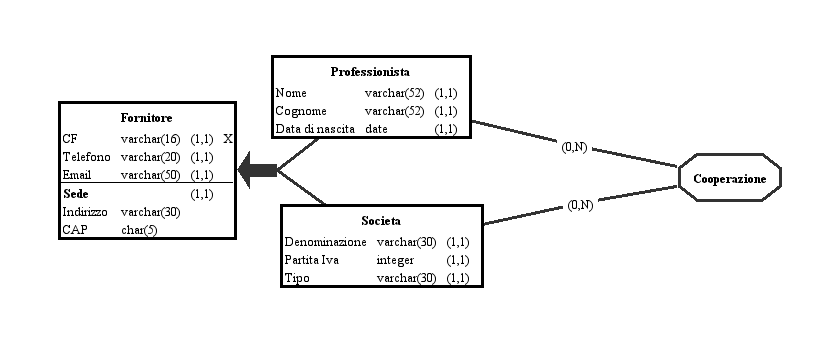
**

Figura 11. Porzione di schema che coinvolge la generalizzazione “Fornitore”

Dallo schema concettuale osserviamo che Fornitore (padre), Società (figlia) e Professionista (figlia) realizzano insieme una generalizzazione totale. Abbiamo ritenuto opportuno l’accorpamento del genitore della generalizzazione nelle figlie.

Questa soluzione è conveniente quando ci sono operazioni che si riferiscono solo a occorrenze di Società e di Professionisti e dunque fanno distinzioni tali entità. Pur duplicando gli attributi, ottengo comunque un risparmio di memoria perché non avremo mai valori nulli.

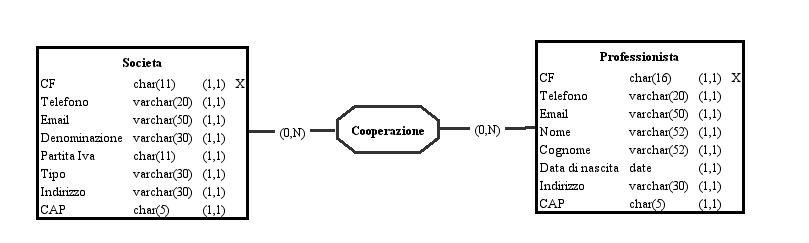
**

Figura 12. Porzione di schema modificata che coinvolgeva la generalizzazione “Fornitore”

### Generalizzazione *Invito*

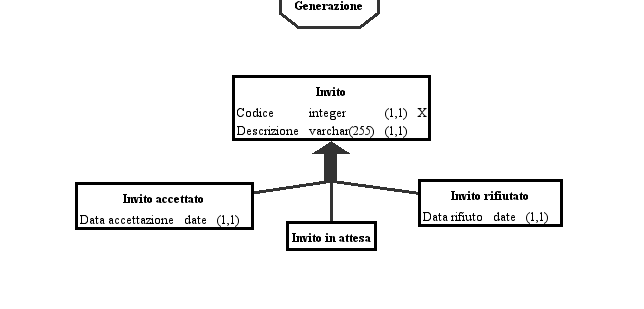
**

Figura 13. Porzione di schema che coinvolge la generalizzazione “Invito”

In questo caso la strada scelta è stata l’accorpamento delle figlie della generalizzazione nel genitore: le tre entità figlie vengono eliminate e le loro proprietà vengono aggiunte all’entità genitore.

All’entità genitore è stato aggiunto un ulteriore attributo (“Esito”) che serve a distinguere l’esito di un’occorrenza del padre (cioè se apparteneva a Invito accettato, Invito in attesa o Invito rifiutato).

Inoltre gli attributi “Data accettazione” e “Data rifiuto”, una volta accorpati nell’entità padre, sono stati “fusi” in “Data esito” perché concettualmente avrebbero rappresentato la stessa cosa e per evitare che uno dei due fosse sempre nullo.

La scelta assicura un numero minore di accessi tra entità.

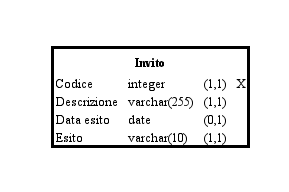


Figura 14. Porzione di schema modificata che coinvolgeva la generalizzazione “Fornitore”

## Partizionamento/Accorpamento Entità e Associazioni

Non abbiamo ritenuto necessario nessun Partizionamento/Accorpamento Entità e Associazioni. L’unica modifica necessaria in questa fase è stata l’eliminazione degli unici due attributi multivalore presenti nello schema concettuale: Cellulare e Metodo di pagamento, entrambi presenti nell’entità “Utente”. Questa ristrutturazione si rende necessaria perché, come per le generalizzazioni, il modello relazionale non permette di rappresentare in maniera diretta questo tipo di attributo.

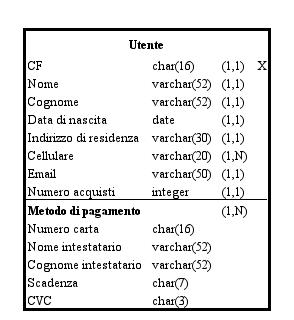
**

Figura 15. Porzione di schema che attributi multivalore

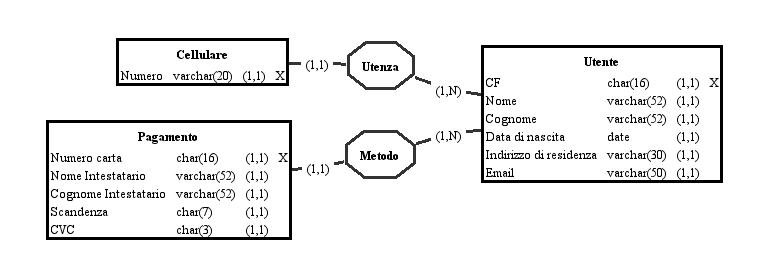
**

Figura 16. Porzione di schema ristrutturata dopo l’eliminazione di attributi multivalore

## Scelta degli identificatori principali

Un identificatore interno è sempre preferibile a uno esterno, per questo motivo in “Acquisto” abbiamo introdotto un “ID” da utilizzare come identificatore.

Anche per le entità “Struttura” e “Disciplina” abbiamo inserito un “ID”; “Servizio” e “Invito”, che avevano già il proprio codice, continuano a mantenere lo stesso identificatore.

Per quanto riguarda le altre entità (Account, Società, Professionista, Utente, Cellulare, Pagamento) abbiamo ritenuto che rispettivamente i CF, il Numero di cellulare, il Numero di carta da utilizzare e l’Username rispecchino le caratteristiche richieste.

## Schema ristrutturato finale

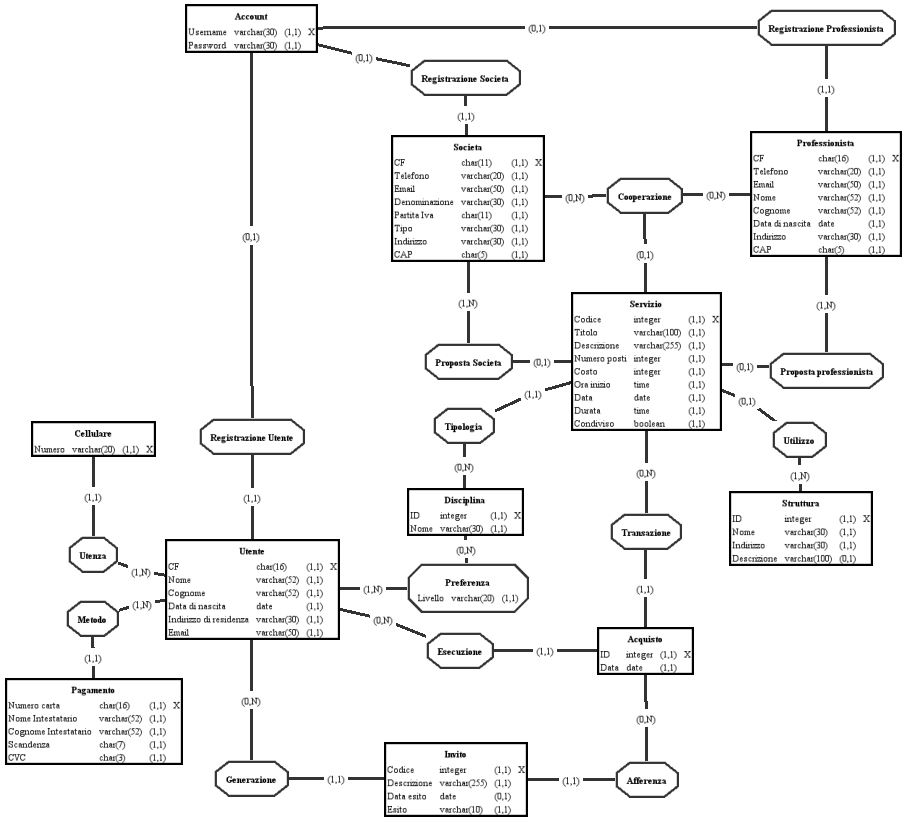


Figura 17. Schema ER Ristrutturato

## Schema logico

* PREFERENZA (ID, CF, Livello)
* SOCIETA (CF, Telefono, Email, Denominazione, PartitaIVA, Tipo, Indirizzo, CAP, Username)
* PROFESSIONISTA (CF, Telefono, Email, Nome, Cognome, DataDiNascita, Indirizzo, CAP, Username
* ACCOUNT (Username, Password)
* PROPOSTA SOCIETA (Servizio, Societa)
* PROPOSTA PROFESSIONISTA (Servizio, Professionista)
* UTILIZZO (Servizio, Struttura)
* DISCIPLINA (ID, Nome)
* STRUTTURA (ID, Nome, Indirizzo, Descrizione)
* COOPERAZIONE (Servizio, Società, Professionista)
* SERVIZIO (Codice, Titolo, Descrizione, NumeroPosti, Costo, OraInizio, Data, Durata, Condiviso, Disciplina)
* ACQUISTO (ID, Data, Servizio, Utente)
* UTENTE (CF, Nome, Cognome, DataDiNascita, IndirizzoDiResidenza, Email, Username)
* CELLULARE (Numero, Utente)
* PAGAMENTO (NumeroCarta, NomeIntestatario, CognomeIntestatario, Scadenza, CVC, Utente)
* INVITO (Codice, Descrizione, DataEsito, Esito, Acquisto, UtenteInvitato)

## Documentazione dello schema logico

Preferenza

|  |  |  |
| --- | --- | --- |
| ID | CF | Livello |
|  |  |  |

Societa

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CF | Telefono | Email | Denominazione | PartitaIVA | Tipo | Indirizzo | CAP | Username |
|  |  |  |  |  |  |  |  |  |

Professionista

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CF | Telefono | Email | Nome | Cognome | DataDiNascita | Indirizzo | CAP | Username |
|  |  |  |  |  |  |  |  |  |

Account

|  |  |
| --- | --- |
| Username | Password |
|  |  |

Proposta Societa

|  |  |
| --- | --- |
| Servizio | Societa |
|  |  |

Proposta Professionista

|  |  |
| --- | --- |
| Servizio | Professionista |
|  |  |

Utilizzo

|  |  |
| --- | --- |
| Servizio | Struttura |
|  |  |

Disciplina

|  |  |
| --- | --- |
| ID | Nome |
|  |  |

Struttura

|  |  |  |  |
| --- | --- | --- | --- |
| ID | Nome | Indirizzo | Descrizione |
|  |  |  |  |

Cooperazione

|  |  |  |
| --- | --- | --- |
| Servizio | Societa | Professionista |
|  |  |  |

Servizio

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Codice | Titolo | Descrizione | NumeroPosti | Costo | OraInizio | Data | Durata | Condiviso | Disciplina |
|  |  |  |  |  |  |  |  |  |  |

Acquisto

|  |  |  |  |
| --- | --- | --- | --- |
| ID | Data | Servizio | Utente |
|  |  |  |  |

Utente

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CF | Nome | Cognome | DataDiNascita | IndirizzoDiResidenza | Email | Username |
|  |  |  |  |  |  |  |

Cellulare

|  |  |
| --- | --- |
| Numero | Utente |
|  |  |

Pagamento

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| NumeroCarta | NomeIntestatario | CognomeIntestatario | Scadenza | CVC | Utente |
|  |  |  |  |  |  |

Invito

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Codice | Descrizione | DataEsito | Esito | Acquisto | UtenteInvitato |
|  |  |  |  |  |  |

# Normalizzazione

|  |  |  |
| --- | --- | --- |
| ***Workpackage*** | ***Task*** | ***Responsabile*** |
| **WP3** | Normalizzazione | Memoli Matteo |

## Analisi delle dipendenze funzionali

### Preferenza

**PREFERENZA** (ID, CF, Livello)

ID, CF -> Livello

Dall’analisi delle dipendenze funzionali possiamo affermare che la relazione **Preferenza** soddisfa la BCNF

### Societa

**SOCIETA** (CF, Telefono, Email, Denominazione, PartitaIVA, Tipo, Indirizzo, CAP, Username)

CF -> Telefono, Email, Denominazione, PartitaIVA, Tipo, Indirizzo, CAP, Username

Dall’analisi delle dipendenze funzionali possiamo affermare che la relazione **Societa** soddisfa la BCNF

### Professionista

**PROFESSIONISTA** (CF, Telefono, Email, Nome, Cognome, DataDiNascita, Indirizzo, CAP, Username)

CF -> Telefono, Email, Nome, Cognome, DataDiNascita, Indirizzo, CAP, Username

Dall’analisi delle dipendenze funzionali possiamo affermare che la relazione **Professionista** soddisfa la BCNF

### Account

**ACCOUNT** (Username, Password)

Username -> Password

Dall’analisi delle dipendenze funzionali possiamo affermare che la relazione **Account** soddisfa la BCNF

### Proposta Societa

**PROPOSTA SOCIETA** (Servizio, Societa)

Servizio -> Societa

Dall’analisi delle dipendenze funzionali possiamo affermare che la relazione **Proposta Societa** soddisfa la BCNF

### Proposta professionista

**PROPOSTA PROFESSIONISTA** (Servizio, Professionista)

Servizio -> Professionista

Dall’analisi delle dipendenze funzionali possiamo affermare che la relazione **Proposta Professionista** soddisfa la BCNF

### Utilizzo

**UTILIZZO** (Servizio, Struttura)

Servizio -> Struttura

Dall’analisi delle dipendenze funzionali possiamo affermare che la relazione **Utilizzo** soddisfa la BCNF

### Disciplina

**DISCIPLINA** (ID, Nome)

ID -> Nome

Dall’analisi delle dipendenze funzionali possiamo affermare che la relazione **Disciplina** soddisfa la BCNF

### Struttura

**STRUTTURA** (ID, Nome, Indirizzo, Descrizione)

ID -> Nome, Indirizzo, Descrizione

Dall’analisi delle dipendenze funzionali possiamo affermare che la relazione **Struttura** soddisfa la BCNF

### Cooperazione

**COOPERAZIONE** (Servizio, Societa, Professionista)

Servizio -> Societa, Professionista

Dall’analisi delle dipendenze funzionali possiamo affermare che la relazione **Cooperazione** soddisfa la BCNF

### Servizio

**SERVIZIO** (Codice, Titolo, Descrizione, NumeroPosti, Costo, OraInizio, Data, Durata, Condiviso, Disciplina)

Codice -> Titolo, Descrizione, NumeroPosti, Costo, OraInizio, Data, Durata, Condiviso, Disciplina

Dall’analisi delle dipendenze funzionali possiamo affermare che la relazione **Servizio** soddisfa la BCNF

### Acquisto

**ACQUISTO** (ID, Data, Servizio, Utente)

ID -> Data, Servizio, Utente

Dall’analisi delle dipendenze funzionali possiamo affermare che la relazione **Acquisto** soddisfa la BCNF

### Utente

**UTENTE** (CF, Nome, Cognome, DataDiNascita, IndirizzoDiResidenza, Email, Username)

CF -> Nome, Cognome, DataDiNascita, IndirizzoDiResidenza, Email, Username

Dall’analisi delle dipendenze funzionali possiamo affermare che la relazione **Utente** soddisfa la BCNF

### Cellulare

**CELLULARE** (Numero, Utente)

Numero -> Utente

Dall’analisi delle dipendenze funzionali possiamo affermare che la relazione **Cellulare** soddisfa la BCNF

### Pagamento

**PAGAMENTO** (NumeroCarta, NomeIntestatario, CognomeIntestatario, Scadenza, CVC, Utente)

NumeroCarta -> NomeIntestatario, CognomeIntestatario, Scadenza, CVC, Utente

Dall’analisi delle dipendenze funzionali possiamo affermare che la relazione **Pagamento** soddisfa la BCNF

### Invito

**INVITO** (Codice, Descrizione, DataEsito, Esito, Acquisto, UtenteInvitato)

Codice -> Descrizione, DataEsito, Esito, Acquisto, UtenteInvitato

Dall’analisi delle dipendenze funzionali possiamo affermare che la relazione **Invito** soddisfa la BCNF

# Script Creazione e Popolamento Database

|  |  |  |
| --- | --- | --- |
| ***Workpackage*** | ***Task*** | ***Responsabile*** |
| **WP2** | SQL: Script creazione e popolamento | Landi Thomas |

## Script di Creazione del Database

### Script di Drop

DROP TABLE IF EXISTS Preferenza cascade;

DROP TABLE IF EXISTS Societa cascade;

DROP TABLE IF EXISTS Professionista cascade;

DROP TABLE IF EXISTS Account cascade;

DROP TABLE IF EXISTS PropostaSocieta cascade;

DROP TABLE IF EXISTS PropostaProfessionista cascade;

DROP TABLE IF EXISTS Utilizzo cascade;

DROP TABLE IF EXISTS Disciplina cascade;

DROP TABLE IF EXISTS Struttura cascade;

DROP TABLE IF EXISTS Cooperazione cascade;

DROP TABLE IF EXISTS Servizio cascade;

DROP TABLE IF EXISTS Acquisto cascade;

DROP TABLE IF EXISTS Utente cascade;

DROP TABLE IF EXISTS Cellulare cascade;

DROP TABLE IF EXISTS Pagamento cascade;

DROP TABLE IF EXISTS Invito cascade;

DROP DOMAIN IF EXISTS TipoEsito cascade;

DROP DOMAIN IF EXISTS TipoLivello cascade;

### Creazione Domini

create domain TipoEsito as varchar(10)

check (value = 'Accettato' or value = 'Rifiutato' or value = 'In attesa');

create domain TipoLivello as varchar(20)

check(value = 'Amatoriale' or value = 'Novizio' or value = 'Agonistico');

### Creazione Tabelle

create table Disciplina (

ID serial primary key,

Nome varchar(30) not NULL UNIQUE

);

create table Account(

Username varchar(30)Primary Key,

Password varchar(30)not NULL

);

create table Societa(

CF char(11) Primary Key,

Telefono varchar(20) not NULL,

Email varchar(50) not NULL,

Denominazione varchar(30),

PartitaIva char (11) not NULL UNIQUE,

Tipo varchar(30),

Indirizzo varchar(30),

CAP char(5) default '00000',

Username varchar(30) UNIQUE,

constraint Foreign\_Societa Foreign Key (Username) references Account on update restrict on delete set NULL

);

create table Professionista(

CF char(16) Primary Key,

Telefono varchar(20) not NULL,

Email varchar(50) not NULL,

Nome varchar(52) not NULL,

Cognome varchar(52) not NULL,

DataDiNascita date,

Indirizzo varchar(30),

CAP char(5) default '00000',

Username varchar(30) UNIQUE,

constraint Foreign\_Professionista Foreign Key (Username) references Account on update restrict on delete set NULL

);

create table Utente(

CF char(16) Primary key,

Nome varchar(52) not NULL,

Cognome varchar(52) not NULL,

DataDiNascita date not NULL,

IndirizzoDiResidenza varchar(30) not NULL,

Email varchar(50) not NULL,

Username varchar(30) UNIQUE,

constraint Foreign\_Utente foreign key(Username) references Account on update restrict on delete set NULL

);

create table Cellulare(

Numero varchar(20) Primary key,

Utente varchar(16) not NULL,

constraint Foreign\_Cellulare foreign key (Utente) references Utente on update cascade on delete restrict

);

create table Pagamento(

NumeroCarta char(16) Primary key,

NomeIntestatario varchar(52) not NULL,

CognomeIntestatario varchar(52) not NULL,

Scadenza char(7) not NULL,

CVC char(3) not null,

Utente char(16) not null,

constraint Foreign\_Pagamento foreign key(Utente) references Utente on update cascade on delete restrict,

constraint Check\_Scadenza Check (Scadenza like '\_\_/20\_\_')

);

create table Servizio(

Codice serial primary key,

Titolo varchar(100) not NULL,

Descrizione varchar(255) not NULL,

NumeroPosti integer not NULL,

Costo decimal(6,2) not NULL,

Data date not NULL,

OraInizio time not NULL,

Durata time not NULL,

Condiviso boolean not NULL,

Disciplina integer not NULL,

constraint Key\_Disciplina foreign key (Disciplina) references Disciplina on update restrict on delete restrict,

constraint CostoMaggioreDiZero CHECK (Costo > 0),

constraint NumeroPostiMaggioreDiZero CHECK(NumeroPosti > 0)

);

create table PropostaSocieta (

Servizio serial primary key,

Societa char(11) not NULL,

constraint Foreign\_PropostaSocieta foreign key (Societa) references Societa on update cascade on delete restrict,

constraint Foreign\_PropostaSocieta\_Servizio foreign key (Servizio) references Servizio on update restrict on delete restrict

);

create table PropostaProfessionista (

Servizio serial primary key,

Professionista char(16) not NULL,

constraint Foreign\_PropostaProfessionista foreign key (Professionista) references Professionista on update restrict on delete restrict,

constraint Foreign\_PropostaProposta\_Servizio foreign key (Servizio) references Servizio on update restrict on delete restrict

);

create table Struttura(

ID serial primary key,

Nome varchar(30) not NULL,

Indirizzo varchar(30) not NULL,

Descrizione varchar(100)

);

create table Utilizzo (

Servizio serial primary key,

Struttura integer not NULL,

constraint Foreign\_Struttura foreign key (Struttura) references Struttura on update cascade on delete restrict,

constraint Foreign\_StrutturaServizio foreign key (Servizio) references Servizio on update restrict on delete restrict

);

create table Cooperazione(

Servizio serial primary key,

Societa char(11) not NULL,

Professionista char(16) not NULL,

constraint Foreign\_CooperazioneSocieta foreign key (Societa) references Societa on update cascade on delete restrict,

constraint Foreign\_CooperazioneProfessionista foreign key (Professionista) references Professionista on update cascade on delete restrict,

constraint Foreign\_CooperazioneServizio foreign key (Servizio) references Servizio on update restrict on delete restrict

);

create table Acquisto(

ID serial primary key,

Data date not NULL,

Servizio integer not NULL,

Utente char(16) not NULL,

constraint Key\_Servizio foreign key (Servizio) references Servizio on update restrict on delete restrict,

constraint Key\_Utente foreign key (Utente) references Utente on update cascade on delete restrict

);

create table Invito(

Codice serial Primary key,

Descrizione varchar(255) not null,

DataEsito date,

Esito TipoEsito default 'In attesa',

Acquisto integer not null,

UtenteInvitato char(16) not null,

constraint Foreign\_InvitoAcquisto foreign key(Acquisto) references Acquisto on update restrict on delete restrict,

constraint Foreign\_InvitoUtente foreign key(UtenteInvitato) references Utente on update cascade on delete restrict

);

create table Preferenza(

ID serial,

CF char(16),

Livello TipoLivello not NULL,

constraint Key\_Preferenza Primary Key (ID,CF),

constraint Foreign\_Preferenza\_Disciplina Foreign Key (ID) references Disciplina on update restrict on delete restrict,

constraint Foreign\_Preferenza\_Utente Foreign Key (CF) references Utente on update cascade on delete cascade

);

## Script di Popolamento del Database

Insert into Disciplina (Nome) values ('Calcio a 8');

Insert into Disciplina (Nome) values ('Tennis');

Insert into Disciplina (Nome) values ('Pallavolo' );

Insert into Disciplina (Nome) values ('Golf');

Insert into Disciplina (Nome) values ('Basket');

Insert into Disciplina (Nome) values ('Danza classica');

Insert into Disciplina (Nome) values ('Hip-Hop');

Insert into Disciplina (Nome) values ('Calcio a 11');

Insert into Disciplina (Nome) values ('Calcio a 5');

Insert into Disciplina (Nome) values ('Ciclismo');

Insert into Disciplina (Nome) values ('Spinning');

Insert into Disciplina (Nome) values ('Zumba');

Insert into Disciplina (Nome) values ('Pallanuoto');

Insert into Disciplina (Nome) values ('Nuoto');

Insert into Disciplina (Nome) values ('Canottaggio');

Insert into Disciplina (Nome) values ('Bocce');

Insert into Disciplina (Nome) values ('Arti marziali');

Insert into Disciplina (Nome) values ('Bowling');

Insert into Disciplina (Nome) values ('Scherma');

Insert into Disciplina (Nome) values ('Boxe');

Insert into Disciplina (Nome) values ('Pugilato');

Insert into Disciplina (Nome) values ('Soft Tennis');

Insert into Disciplina (Nome) values ('Ginnastica Artistica');

Insert into Disciplina (Nome) values ('Ski archery');

Insert into Disciplina (Nome) values ('Kung Fu Vietnamita');

Insert into Disciplina (Nome) values ('Freccette');

Insert into Disciplina (Nome) values ('Ginnastica Ritmica');

Insert into Disciplina (Nome) values ('Atletica leggera');

Insert into Disciplina (Nome) values ('Hockey su pista');

Insert into Disciplina (Nome) values ('Sollevamento pesi');

Insert into Account values ('cagliarimarioDG','cmDGgcom');

Insert into Account values ('davincipippoB','dpBgcom');

Insert into Account values ('leopardimariaS','lmSgcom');

Insert into Account values ('dantefrancesca','dfMgcom');

Insert into Account values ('toscanamarcoS','tmSgcom');

Insert into Account values ('romaspa','rspagcom');

Insert into Account values ('napolisnc','nsncgcom');

Insert into Account values ('firenzespa','fspagcom');

Insert into Account values ('milanospa','mspagcom');

Insert into Account values ('torinoss','tssgcom');

Insert into Account values ('GigiEsp89','ge89fcom');

Insert into Account values ('Sara00','ls99gcom');

Insert into Account values ('Paolillo99','ap99gcom');

Insert into Account values ('tlandi3','lt1999gcom');

Insert into Account values ('SavareseGranata19','sm1919gcom');

Insert into Account values ('ValeriaC01','vc01gcom');

Insert into Account values ('Fortunato77','ff77gcom');

Insert into Account values ('Memoli85','mm85gcom');

Insert into Account values ('Serena94','sc94gcom');

Insert into Account values ('Santo90','sg90gcom');

Insert into Societa values ('12345678912','089302230','romaspa@gmail.com','FederazioneRomaSPA','12345678912','Federazione','Via Roma','84100','romaspa');

Insert into Societa values ('43215678912','089336712','napolisnc@gmail.com','PalestraNapoliSNC','43215678912','Palestra','Via Napoli','94105','napolisnc');

Insert into Societa values ('12341234912','089312019','firenzespa@gmail.com','FederazuineFirenzeSPA.','14321567891','Federazione','Via Firenze','91340','firenzespa');

Insert into Societa values ('12344321912','089282015','milanospa@gmail.com','FederazioneMIlanoSPA.','12344321912','Federazione','Via Milano','90100','milanospa');

Insert into Societa values ('12301010912','089102015','torinoss@gmail.com','ClubTorinoSS.','98745678912','Club','Via Torino','89150','torinoss');

Insert into Professionista values ('DGRMRA99L01L219J','3332534556','cagliarimarioDG@gmail.com','Mario','De Gregori','1999-07-01','Via Cagliari','86700','cagliarimarioDG');

Insert into Professionista values ('BDAPPP86D23H703F','3333644234','davincipippoB@gmail.com','Pippo','Baudo','1986-04-23','Via Da Vinci','95110','davincipippoB');

Insert into Professionista values ('SNTMRA92T59B180C','3334754133','leopardimariaS@gmail.com','Maria','Santos','1992-12-19','Via Leopardi','10101','leopardimariaS');

Insert into Professionista values ('MRRFNC82B45C351S','3335864011','dantefrancescaM@gmail.com','Francesca','Morriello','1982-02-05','Via Dante','90892','dantefrancesca');

Insert into Professionista values ('SBBMRC92M09H703Y','3336974412','toscanamarcoS@gmail.com','Marco','Sabbarese','1992-08-09','Via Toscana','30129','toscanamarcoS');

insert into Utente values ('SPSGNR89T12G942K','Gennaro','Esposito','12/12/1989','Via Nicola Farina ','GennaroEsposito89@gmail.com','GigiEsp89');

insert into Utente values ('LNDSRA00R41L781V','Sara','Landi','01/10/2000','Corso Emanuele ','LandiSara99@gmail.com','Sara00');

insert into Utente values ('PLLLSN99C20H703T','Alessandro','Paolillo','20/03/1999','Via Sandro Pertini','APaolillo@gmail.com','Paolillo99');

insert into Utente values ('LNDTMS99S13F138A','Thomas','Landi','13/11/1999','Via Nicola Farina ','landithomas1999@gmail.com','tlandi3');

insert into Utente values ('SVRMRC79H19H703D','Marco','Savarese','19/06/1979','Via Salvador Allende','SavareseMarco1919@gmail.com','SavareseGranata19');

insert into Utente values ('CNCVLR01M44L483D','Valeria','Concilio','04/08/2001','Via Ferreria', 'ValeriaConcilio01@gmail.com','ValeriaC01');

insert into Utente values ('FRTFNC77L45L219Y','Francesca','Fortunato','05/07/1977','Via Machiavelli','FrancescaFortunato77@gmail.com','Fortunato77');

insert into Utente values ('MMLMTT85M14H199M','Matteo','Memoli','14/08/85','Via Giovanni Paolo II','MatteoMemoli85@gmail.com','Memoli85');

insert into Utente values ('CLPSRN94T65A944U','Serena','Colapesce','25/03/94','Via Don Mizzoni','SerenaColpasce94@gmail.com','Serena94');

insert into Utente values ('SNTGPP90T25A089N','Giuseppe','Santo','25/12/90','Via Trinità','SantoGiuseppe90@gmail.com','Santo90');

insert into Cellulare values ('3400427881','SPSGNR89T12G942K');

insert into Cellulare values ('3310378810','LNDSRA00R41L781V');

insert into Cellulare values ('3331015300','PLLLSN99C20H703T');

insert into Cellulare values ('3400721672','LNDTMS99S13F138A');

insert into Cellulare values ('3312564098','SVRMRC79H19H703D');

insert into Cellulare values ('3276509876','CNCVLR01M44L483D');

insert into Cellulare values ('3392555321','MMLMTT85M14H199M');

insert into Cellulare values ('3271467947','CLPSRN94T65A944U');

insert into Cellulare values ('3274422331','SNTGPP90T25A089N');

insert into Cellulare values ('089956743','SNTGPP90T25A089N');

insert into Cellulare values ('089955058','LNDTMS99S13F138A');

insert into Cellulare values ('3401234567','FRTFNC77L45L219Y');

insert into Pagamento values ('1234567891234567','Gennaro','Esposito','12/2025','123','SPSGNR89T12G942K');

insert into Pagamento values ('1223344556677889','Sara','Landi','10/2026','345','LNDSRA00R41L781V');

insert into Pagamento values ('9887766554433221','Marco','Savarese','09/2023','567','SVRMRC79H19H703D');

insert into Pagamento values ('1029384756473829','Thomas','Landi','08/2025','789','LNDTMS99S13F138A');

insert into Pagamento values ('7968574635241324','Serena','Memoli','11/2024','910','PLLLSN99C20H703T');

insert into Pagamento values ('9164827391837464','Giuseppe','Santo','12/2024','101','SNTGPP90T25A089N');

insert into Pagamento values ('6826598196458178','Mattia','Pascal','08/2027','112','LNDTMS99S13F138A');

insert into Pagamento values ('9167591647657416','Francesca','Fortunato','03/2029','133','FRTFNC77L45L219Y');

insert into Pagamento values ('234567432rr34756','Matteo','Memoli','03/2022','919','MMLMTT85M14H199M');

insert into Pagamento values ('3242353453454543','Valeria','Concilio','01/2025','118','CNCVLR01M44L483D');

insert into Pagamento values ('9814545683746538','Serena','Colapesce','02/2023','113','CLPSRN94T65A944U');

insert into Pagamento values ('8956948763591365','Alessandro','Paolillo','07/2027','115','PLLLSN99C20H703T');

insert into Servizio (Titolo,Descrizione,NumeroPosti,Costo,Data,OraInizio,Durata,Condiviso,Disciplina) values ('Corso di tennis', 'Corso di tennis per bambini con professionista certificato che si svolge in tre sedute', '10', '60', '15/05/2021', '16:00', '01:30', 'false', '2');

insert into Servizio (Titolo,Descrizione,NumeroPosti,Costo,Data,OraInizio,Durata,Condiviso,Disciplina) values ('Prenotazione Struttura', 'Prenotazione campo per partita di calcio a 5', '1', '40', '17/05/2021', '19:00', '01:00', 'true', '9');

insert into Servizio (Titolo,Descrizione,NumeroPosti,Costo,Data,OraInizio,Durata,Condiviso,Disciplina) values ('Lezione una-tantum golf', 'Lezione di golf erogato da professionista certificato', '15', '25', '20/06/2021', '14:00', '03:00', 'false', '4');

insert into Servizio (Titolo,Descrizione,NumeroPosti,Costo,Data,OraInizio,Durata,Condiviso,Disciplina) values ('Consulenza', 'Migliorare la gestione del singolo atleta o tecnico ', '1', '100', '26/05/2021', '17:00', '03:00', 'false', '5');

insert into Servizio (Titolo,Descrizione,NumeroPosti,Costo,Data,OraInizio,Durata,Condiviso,Disciplina) values ('Lezione una-tantum Hip Hop', 'Corso di Hip Hop erogato da un professionista certificato', '15', '25', '05/08/2021', '10:00', '04:00', 'false', '7');

insert into Servizio (Titolo,Descrizione,NumeroPosti,Costo,Data,OraInizio,Durata,Condiviso,Disciplina) values ('Prenotazione Struttura', 'Prenotazione campo per partita di calcio a 11', '1', '50', '14/05/2021', '20:00', '01:30', 'true', '8');

insert into Servizio (Titolo,Descrizione,NumeroPosti,Costo,Data,OraInizio,Durata,Condiviso,Disciplina) values ('Corso di Pallavolo', 'Corso di Pallavolo erogato da un professionista certificato che si svolge in 5 sedute', '10', '100', '18/11/2021', '16:00', '02:00', 'false', '3');

insert into Servizio (Titolo,Descrizione,NumeroPosti,Costo,Data,OraInizio,Durata,Condiviso,Disciplina) values ('Lezione una-tantum Arti Marziali', 'Lezione individuale di arti marziali con professionista certificato', '1', '35', '23/04/2021', '12:00', '01:30', 'false', '17');

insert into Servizio (Titolo,Descrizione,NumeroPosti,Costo,Data,OraInizio,Durata,Condiviso,Disciplina) values ('Consulenza', 'Consulenza Sportiva per gli atleti di marcia, salto con l asta, salto in alto', '1', '25', '01/07/2021', '16:00', '01:00', 'false', '28');

insert into Servizio (Titolo,Descrizione,NumeroPosti,Costo,Data,OraInizio,Durata,Condiviso,Disciplina) values ('Prenotazione Struttura', 'Prenotazione campo al coperto per partita di pallavolo', '1', '40', '07/06/2021', '20:30', '01:30', 'true', '3');

insert into Servizio (Titolo,Descrizione,NumeroPosti,Costo,Data,OraInizio,Durata,Condiviso,Disciplina) values ('Lezione una-tantum Scii', 'Lezione di Scii con professionista certificato per utenti alle prime armi', '1', '35', '22/12/2021', '15:00', '02:30', 'false', '24');

insert into Servizio (Titolo,Descrizione,NumeroPosti,Costo,Data,OraInizio,Durata,Condiviso,Disciplina) values ('Consulenza', 'Consulenza sportiva per migliorare l alimentazione durante le competizioni di cannottaggio ', '1', '55', '05/09/2021', '15:30', '01:30', 'false', '15');

insert into Servizio (Titolo,Descrizione,NumeroPosti,Costo,Data,OraInizio,Durata,Condiviso,Disciplina) values ('Consulenza', 'Consulenza per migliorare l elasticità dei muscoli e l equilibrio interiore', '1', '25', '08/06/2021', '16:30', '01:00', 'false', '23');

insert into Servizio (Titolo,Descrizione,NumeroPosti,Costo,Data,OraInizio,Durata,Condiviso,Disciplina) values ('Corso di nuoto', 'Corso di nuoto per principianti con professionista certificato che si svolge in 10 sedute', '5', '350', '06/01/2022', '17:00', '01:00', 'false', '14');

insert into Servizio (Titolo,Descrizione,NumeroPosti,Costo,Data,OraInizio,Durata,Condiviso,Disciplina) values ('Prenotazione Struttura', 'Prenotazione campo di bocce al coperto', '1', '20', '13/10/2021', '10:00', '01:00', 'true', '16');

insert into Servizio (Titolo,Descrizione,NumeroPosti,Costo,Data,OraInizio,Durata,Condiviso,Disciplina) values ('Corso di tennis', 'Corso di tennis per bambini con professionista certificato che si svolge in tre sedute', '10', '100', '14/05/2021', '16:00', '01:30', 'false', '2');

Insert into PropostaSocieta values ('1','12345678912');

Insert into PropostaSocieta values ('6','12341234912');

Insert into PropostaSocieta values ('10','12301010912');

Insert into PropostaSocieta values ('15','12345678912');

insert into PropostaSocieta values ('16','12345678912');

Insert into PropostaProfessionista values ('8','SBBMRC92M09H703Y');

Insert into PropostaProfessionista values ('9','BDAPPP86D23H703F');

Insert into PropostaProfessionista values ('2','SBBMRC92M09H703Y');

Insert into PropostaProfessionista values ('3','BDAPPP86D23H703F');

insert into Cooperazione values ('4','43215678912','DGRMRA99L01L219J');

insert into Cooperazione values ('5','12344321912','SNTMRA92T59B180C');

insert into Cooperazione values ('13','12301010912','MRRFNC82B45C351S');

insert into Cooperazione values ('7','43215678912','DGRMRA99L01L219J');

insert into Cooperazione values ('11','12341234912','SNTMRA92T59B180C');

insert into Cooperazione values ('12','12344321912','MRRFNC82B45C351S');

insert into Cooperazione values ('14','12301010912','MRRFNC82B45C351S');

insert into Struttura (Nome,Indirizzo,Descrizione) values ('Settembrino','via Settemebre','Via settembre struttura che offre molti servizi');

insert into Struttura (Nome,Indirizzo,Descrizione) values ('De Gasperi','via Italia','Via Italia Struttura per gli appassionati di sport');

insert into Struttura (Nome,Indirizzo,Descrizione) values ('Figliolia','via Famiglia','Via Famiglia Struttura per chi ama stare insieme');

insert into Struttura (Nome,Indirizzo,Descrizione) values ('Olimpico','via Santi','Via Santi Struttura per gli amanti dello sport');

insert into Struttura (Nome,Indirizzo,Descrizione) values ('Salvador','via Dei Mille','Via dei Mille Struttura per gli amanti dle terzo tempo');

insert into Utilizzo values('2','1');

insert into Utilizzo values('6','2');

insert into Utilizzo values('10','3');

insert into Utilizzo values('15','4');

insert into Utilizzo values('1','5');

insert into Utilizzo values('3','4');

insert into Utilizzo values('7','2');

insert into Utilizzo values('11','1');

insert into Utilizzo values('14','5');

insert into Utilizzo values('5','3');

insert into Acquisto (Data,Servizio,Utente) values ('14/05/2021','1','SPSGNR89T12G942K');

insert into Acquisto (Data,Servizio,Utente) values ('14/05/2021','1','LNDSRA00R41L781V');

insert into Acquisto (Data,Servizio,Utente) values ('14/05/2021','1','PLLLSN99C20H703T');

insert into Acquisto (Data,Servizio,Utente) values ('14/05/2021','1','LNDTMS99S13F138A');

insert into Acquisto (Data,Servizio,Utente) values ('16/05/2021','2','SVRMRC79H19H703D');

insert into Acquisto (Data,Servizio,Utente) values ('19/06/2021','3','CNCVLR01M44L483D');

insert into Acquisto (Data,Servizio,Utente) values ('19/06/2021','3','FRTFNC77L45L219Y');

insert into Acquisto (Data,Servizio,Utente) values ('19/06/2021','3','MMLMTT85M14H199M');

insert into Acquisto (Data,Servizio,Utente) values ('19/06/2021','3','CLPSRN94T65A944U');

insert into Acquisto (Data,Servizio,Utente) values ('19/06/2021','3','SNTGPP90T25A089N');

insert into Acquisto (Data,Servizio,Utente) values ('19/06/2021','3','SPSGNR89T12G942K');

insert into Acquisto (Data,Servizio,Utente) values ('19/06/2021','3','LNDSRA00R41L781V');

insert into Acquisto (Data,Servizio,Utente) values ('19/06/2021','3','PLLLSN99C20H703T');

insert into Acquisto (Data,Servizio,Utente) values ('19/06/2021','3','LNDTMS99S13F138A');

insert into Acquisto (Data,Servizio,Utente) values ('25/05/2021','4','LNDTMS99S13F138A');

insert into Acquisto (Data,Servizio,Utente) values ('04/08/2021','5','SVRMRC79H19H703D');

insert into Acquisto (Data,Servizio,Utente) values ('04/08/2021','5','CNCVLR01M44L483D');

insert into Acquisto (Data,Servizio,Utente) values ('04/08/2021','5','FRTFNC77L45L219Y');

insert into Acquisto (Data,Servizio,Utente) values ('11/05/2021','6','FRTFNC77L45L219Y');

insert into Acquisto (Data,Servizio,Utente) values ('17/11/2021','7','CLPSRN94T65A944U');

insert into Acquisto (Data,Servizio,Utente) values ('22/04/2021','8','SNTGPP90T25A089N');

insert into Acquisto (Data,Servizio,Utente) values ('30/06/2021','9','SPSGNR89T12G942K');

insert into Acquisto (Data,Servizio,Utente) values ('13/05/2021','1','SPSGNR89T12G942K');

insert into Acquisto (Data,Servizio,Utente) values ('18/06/2021','3','CLPSRN94T65A944U');

insert into Acquisto (Data,Servizio,Utente) values ('03/06/2021','10','LNDSRA00R41L781V');

insert into Acquisto (Data,Servizio,Utente) values ('21/12/2021','11','PLLLSN99C20H703T');

insert into Acquisto (Data,Servizio,Utente) values ('04/09/2021','12','LNDTMS99S13F138A');

insert into Acquisto (Data,Servizio,Utente) values ('07/06/2021','13','SVRMRC79H19H703D');

insert into Acquisto (Data,Servizio,Utente) values ('05/01/2022','14','FRTFNC77L45L219Y');

insert into Acquisto (Data,Servizio,Utente) values ('09/10/2021','15','CLPSRN94T65A944U');

insert into Invito (Descrizione,DataEsito,Esito,Acquisto,UtenteInvitato) values ('Ciao Gennaro, ti invito a partecipare alla partita di calcio a 5','16/05/2021','Accettato','5','SPSGNR89T12G942K');

insert into Invito (Descrizione,DataEsito,Esito,Acquisto,UtenteInvitato) values ('Ciao Sara, ti invito a partecipare alla partita di calcio a 5','16/05/2021','Accettato','5','LNDSRA00R41L781V');

insert into Invito (Descrizione,DataEsito,Esito,Acquisto,UtenteInvitato) values ('Ciao Alessandro, ti invito a partecipare alla partita di calcio a 5','16/05/2021','Rifiutato','5','PLLLSN99C20H703T');

insert into Invito (Descrizione,DataEsito,Esito,Acquisto,UtenteInvitato) values ('Ciao Thomas, ti invito a partecipare alla partita di calcio a 5','16/05/2021','Accettato','5','LNDTMS99S13F138A');

insert into Invito (Descrizione,DataEsito,Esito,Acquisto,UtenteInvitato) values ('Ciao Valeria, ti invito a partecipare alla partita di calcio a 5','16/05/2021','Rifiutato','5','CNCVLR01M44L483D');

insert into Invito (Descrizione,DataEsito,Esito,Acquisto,UtenteInvitato) values ('Ciao Francesca, ti invito a partecipare alla partita di calcio a 5','16/05/2021','Accettato','5','FRTFNC77L45L219Y');

insert into Invito (Descrizione,DataEsito,Esito,Acquisto,UtenteInvitato) values ('Ciao Matteo, ti invito a partecipare alla partita di calcio a 5','16/05/2021','Rifiutato','5','MMLMTT85M14H199M');

insert into Invito (Descrizione,DataEsito,Esito,Acquisto,UtenteInvitato) values ('Ciao Gennaro, ti invito a partecipare alla partita di calcio a 11','12/05/2021','Rifiutato','19','SPSGNR89T12G942K');

insert into Invito (Descrizione,DataEsito,Esito,Acquisto,UtenteInvitato) values ('Ciao Gennaro, ti invito a partecipare alla partita di calcio a 11','12/05/2021','Accettato','19','SPSGNR89T12G942K');

insert into Invito (Descrizione,DataEsito,Esito,Acquisto,UtenteInvitato) values ('Ciao Sara, ti invito a partecipare alla partita di calcio a 11','12/05/2021','Rifiutato','19','LNDSRA00R41L781V');

insert into Invito (Descrizione, Acquisto, UtenteInvitato) values ('Ciao Alessandro, ti invito a partecipare alla partita di calcio a 11','19','PLLLSN99C20H703T');

insert into Invito (Descrizione,DataEsito,Esito,Acquisto,UtenteInvitato) values ('Ciao Thomas, ti invito a partecipare alla partita di calcio a 11','13/05/2021','Accettato','19','LNDTMS99S13F138A');

insert into Invito (Descrizione,DataEsito,Esito,Acquisto,UtenteInvitato) values ('Ciao Marco, ti invito a partecipare alla partita di calcio a 11','13/05/2021','Accettato','19','SVRMRC79H19H703D');

insert into Invito (Descrizione, Acquisto, UtenteInvitato) values ('Ciao Francesca, ti invito a partecipare alla partita di calcio a 11','19','FRTFNC77L45L219Y');

insert into Invito (Descrizione,DataEsito,Esito,Acquisto,UtenteInvitato) values ('Ciao Serena, ti invito a partecipare alla partita di palavolo','3/06/2021','Rifiutato','25','CLPSRN94T65A944U');

insert into Invito (Descrizione,DataEsito,Esito,Acquisto,UtenteInvitato) values ('Ciao Valeria, ti invito a partecipare alla partita di palavolo','4/06/2021','Accettato','25','CNCVLR01M44L483D');

insert into Invito (Descrizione,DataEsito,Esito,Acquisto,UtenteInvitato) values ('Ciao Gennaro, ti invito a partecipare alla partita di bocce','09/10/2021','Rifiutato','30','SPSGNR89T12G942K');

insert into Invito (Descrizione,DataEsito,Esito,Acquisto,UtenteInvitato) values ('Ciao Sara, ti invito a partecipare alla partita di bocce','10/10/2021','Accettato','30','LNDSRA00R41L781V');

insert into Invito (Descrizione, Acquisto, UtenteInvitato) values ('Ciao Alessandro, ti invito a partecipare alla partita di bocce','30','PLLLSN99C20H703T');

Insert into Preferenza (CF,Livello) values ('PLLLSN99C20H703T','Amatoriale');

Insert into Preferenza (CF,Livello) values ('LNDTMS99S13F138A','Agonistico');

Insert into Preferenza (CF,Livello) values ('PLLLSN99C20H703T','Novizio');

Insert into Preferenza (CF,Livello) values ('LNDTMS99S13F138A','Amatoriale');

Insert into Preferenza (CF,Livello) values ('CNCVLR01M44L483D','Amatoriale');

Insert into Preferenza (CF,Livello) values ('SVRMRC79H19H703D','Novizio');

Insert into Preferenza (CF,Livello) values ('FRTFNC77L45L219Y','Amatoriale');

Insert into Preferenza (CF,Livello) values ('CNCVLR01M44L483D','Agonistico');

Insert into Preferenza (CF,Livello) values ('SVRMRC79H19H703D','Agonistico');

Insert into Preferenza (CF,Livello) values ('MMLMTT85M14H199M','Novizio');

Insert into Preferenza (CF,Livello) values ('CNCVLR01M44L483D','Amatoriale');

Insert into Preferenza (CF,Livello) values ('CLPSRN94T65A944U','Agonistico');

Insert into Preferenza (CF,Livello) values ('SVRMRC79H19H703D','Agonistico');

Insert into Preferenza (CF,Livello) values ('SNTGPP90T25A089N','Amatoriale');

Insert into Preferenza (CF,Livello) values ('MMLMTT85M14H199M','Novizio');

Insert into Preferenza (CF,Livello) values ('FRTFNC77L45L219Y','Amatoriale');

Insert into Preferenza (CF,Livello) values ('SNTGPP90T25A089N','Amatoriale');

Insert into Preferenza (CF,Livello) values ('CLPSRN94T65A944U','Novizio');

Insert into Preferenza (CF,Livello) values ('MMLMTT85M14H199M','Agonistico');

Insert into Preferenza (CF,Livello) values ('FRTFNC77L45L219Y','Agonistico');

Insert into Preferenza (CF,Livello) values ('SNTGPP90T25A089N','Amatoriale');

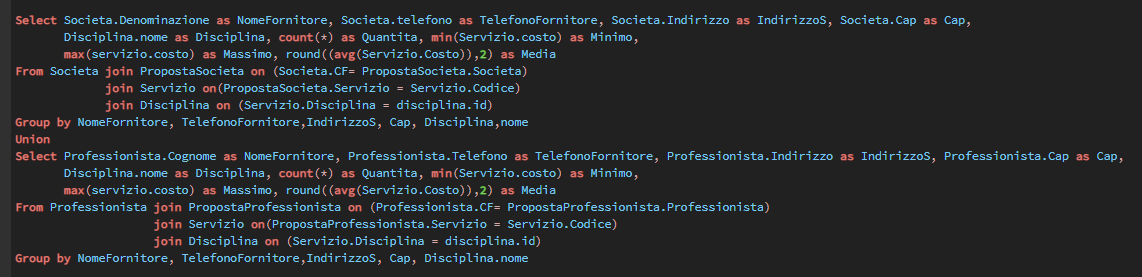
Insert into Preferenza (CF,Livello) values ('CLPSRN94T65A944U','Novizio');

# Query SQL

|  |  |  |
| --- | --- | --- |
| ***Workpackage*** | ***Task*** | ***Responsabile*** |
| **WP3** | SQL: Query | Memoli Matteo |

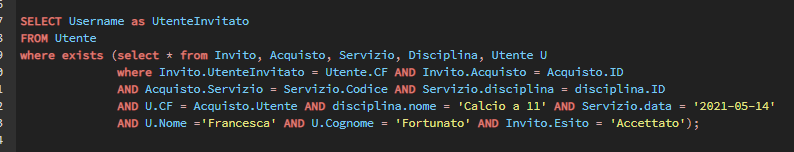
## Query con operatore di aggregazione e join: Elenco riassuntivo dei servizi offerti

Visualizza l'elenco delle discipline offerte dalle società e dai professionisti mostrando le loro informazioni, il prezzo minimo, medio e massimo relativo a quella disciplina



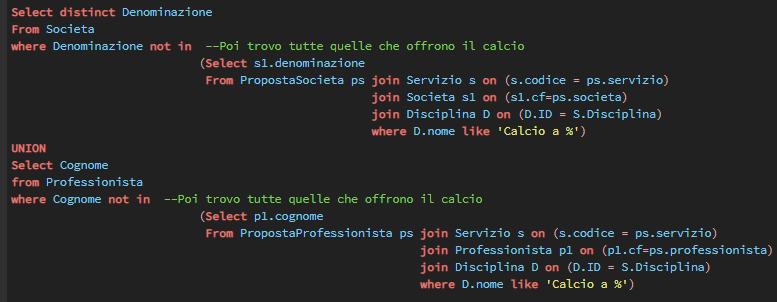
## Query nidificata complessa: Utenti Invitati

Visualizza l’elenco degli utenti invitati che hanno accetto l’invito di ‘Francesca Fortunato’ per il servizio di ‘Calcio a 11’ nella data sopra indicata

**

## Query insiemistica: Tutte le societa che non offrono il calcio a 11

La query visualizza tutte le Società e professionisti che non offrono il Servizio di Calcio.

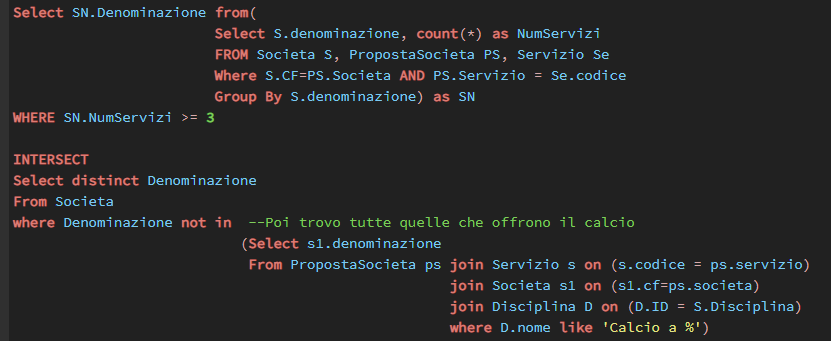
Immagine che contiene testo

Descrizione generata automaticamente

## Altre Query

### Societa che offrono almeno 3 servizi ma nessuno di calcio

La query permette di visualizzare le Società che offrono almeno 3 servizi e, allo stesso tempo, la disciplina coinvolta non riguarda il "Calcio".

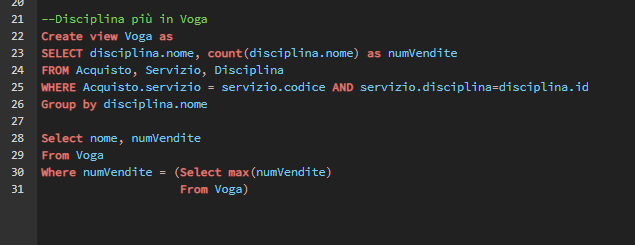


# Viste

|  |  |  |
| --- | --- | --- |
| ***Workpackage*** | ***Task*** | ***Responsabile*** |
| **WP4** | Viste | Paolillo Alessandro |

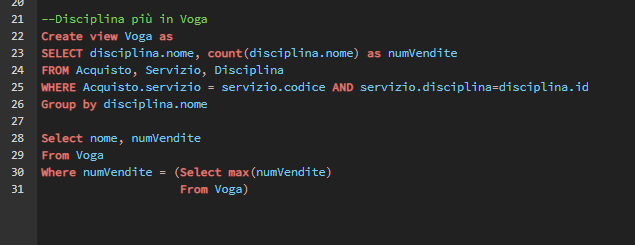
## Vista Voga

Creiamo la vista che permette di visualizzare le discipline e il numero di vendite delle discipline coinvolte nell’acquisizione

**

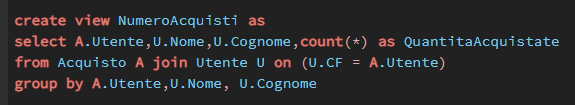
### Query con Vista: Voga

Con l’aiuto della vista ‘Voga’ creata possiamo selezionare la disciplina più in voga del momento.

**

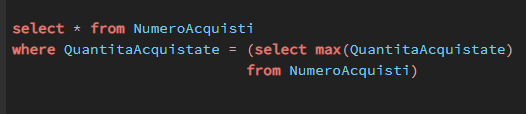
## Vista NumeroAcquisti

Creiamo la vista che permette di visualizzare il numero degli acquisti di ogni utente.

****

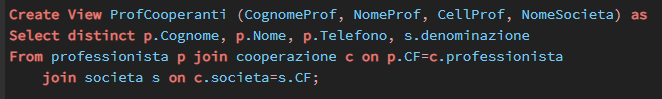
### Query con Vista: NumeroAcquisti

Con l’aiuto della vista ‘NumeroAcquisti’ possiamo selezionare chi ha acquistato più servizi in questo momento

****

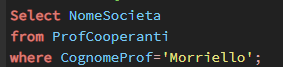
## Vista: Professionisti Cooperanti

Definisco la vista per visualizzare le informazioni dei professionisti e le società con cui cooperano.



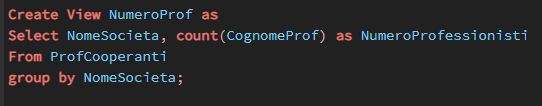
### Query con vista: Cooperazioni professionista Morriello

Visualizzo, utilizzando la vista appena creata, le società con cui coopera il professionista Morriello



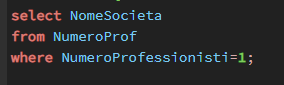
#### Sottovista: NumeroProf

Definisco la sottovista "NumeroProf" per mostrare il numero di professionisti che cooperano con una società.



##### Query con Sottovista: NumeroProf

Visualizzo le società che collaborano con un solo professionista.



# Trigger

## Trigger inizializzazione: *Controllo Username*

|  |  |  |
| --- | --- | --- |
| ***Workpackage*** | ***Task*** | ***Responsabile*** |
| **WP1** | Trigger inizializzazione/popolamento database | Savarese Marco |

### Creazione trigger controllo username\_utente

Il seguente trigger consente di verificare se l'username del nuovo utente che si sta inserendo è già utilizzato da un professionista o una società.

DROP FUNCTION Check\_username\_utente() cascade;

*CREATE FUNCTION Check\_username\_utente() returns trigger as $$*

*BEGIN*

*if (exists(select\*from Societa where username =new.username) or exists(select\*from Professionista where username =new.username)) then*

*raise exception 'Username esistente';*

*end if;*

*Return new;*

*END*

*$$ Language plpgsql;*

*CREATE TRIGGER check\_insert\_usernameUtente*

*BEFORE INSERT ON UTENTE*

*FOR EACH ROW EXECUTE PROCEDURE Check\_username\_utente();*

### Creazione trigger controllo username\_professionista

Il seguente trigger consente di verificare se l'username del nuovo Professionista che si sta inserendo è già utilizzato da un utente o una società.

DROP FUNCTION Check\_username\_Professionista() cascade;

*CREATE FUNCTION Check\_username\_Professionista() returns trigger as $$*

*BEGIN*

*if (exists(select\*from Societa where username =new.username) or exists(select\*from Utente where username =new.username)) then*

*raise exception 'Username esistente';*

*end if;*

*Return new;*

*END*

*$$ Language plpgsql;*

*CREATE TRIGGER check\_insert\_usernameProfessionista*

*BEFORE INSERT ON Professionista*

*FOR EACH ROW EXECUTE PROCEDURE Check\_username\_Professionista();*

### Creazione trigger username\_societa

Il seguente trigger consente di verificare se l'username della nuova societa che si sta inserendo è già utilizzato da un professionista o da un utente.

DROP FUNCTIONCheck\_username\_Societa() cascade;

*CREATE FUNCTION Check\_username\_Societa() returns trigger as $$*

*BEGIN*

*if (exists(select\*from Utente where username =new.username) or exists(select\*from Professionista where username =new.username)) then*

*raise exception 'Username esistente';*

*end if;*

*Return new;*

*END*

*$$ Language plpgsql;*

*CREATE TRIGGER check\_insert\_usernameSocieta*

*BEFORE INSERT ON Societa*

*FOR EACH ROW EXECUTE PROCEDURE Check\_username\_Societa();*

### Creazione trigger Inserimenti in PropostaSocieta dato inserimenti in Cooperazione

Visto e considerato che un servizio svolto in cooperazione tra una Societa e un Professionista deve essere fornito da una Societa, realizziamo il seguente trigger affinchè un inserimento di un servizio in Cooperazione venga messo automaticamente anche in PropostaSocieta.

DROP FUNCTION insert\_PropostaSocieta() cascade;

CREATE FUNCTION insert\_PropostaSocieta() returns trigger as $$

BEGIN

select Servizio, Societa into new.Servizio, new.Societa from newTab;

INSERT into PropostaSocieta values (new.Servizio, new.Societa);

RETURN NULL;

END

$$ LANGUAGE plpgsql;

CREATE TRIGGER Popolamento\_PropostaSocieta

AFTER INSERT ON Cooperazione

REFERENCING NEW TABLE as newTab FOR EACH STATEMENT

EXECUTE PROCEDURE insert\_PropostaSocieta();

## Trigger per vincoli aziendali

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| --- | --- | --- |
| ***Workpackage*** | ***Task*** | ***Responsabile*** |
| **WP4** | Trigger per vincoli aziendali | Paolillo Alessandro |

### Trigger1: Creazione trigger controllo acquisto

**Il trigger monitora l'inserimento di un nuovo acquisto. Quest'ultimo, infatti, deve essere possibile solo se la data di inizio del servizio**

**che si desidera acquistare è successiva alla data di esecuzione dell'acquisto. Il trigger, inoltre, deve necessariamente verificare che il numero di acquisti inseriti**

**per quel determinato servizio sia minore o uguale al numero di posti disponibili per quel servizio.**

DROP FUNCTION check\_Acquisti() cascade;

*Create function check\_Acquisti() RETURNS trigger as $$*

*Begin*

*if(((Select Servizio.numeroposti*

*from Servizio*

*where new.servizio=Servizio.codice)=(Select count(\*) from Acquisto where Acquisto.servizio = new.servizio)) and ((Select Servizio.data from Servizio where new.servizio=Servizio.codice) <= new.Data)) then raise Exception 'Numero posti terminati e servizio scaduto';*

*end if;*

*if((Select Servizio.numeroposti*

*from Servizio*

*where new.servizio=Servizio.codice)=(Select count(\*) from Acquisto where Acquisto.servizio = new.servizio)) then raise Exception 'Numero posti Terminati';*

*end if;*

*if((Select Servizio.data*

*from Servizio*

*where new.servizio=Servizio.codice) <= new.Data) then raise Exception 'Servizio Scaduto';*

*end if;*

*RETURN new;*

*END*

*$$ LANGUAGE plpgsql;*

*CREATE TRIGGER check\_inserimentoAcquisto*

*BEFORE INSERT ON ACQUISTO*

*FOR EACH ROW EXECUTE procedure check\_Acquisti();*

### Trigger2: Creazione trigger controllo invito condivisibile

**Il trigger è usato per controllare che il servizio coinvolto in un invito sia condivisibile.**

DROP FUNCTION *check\_Invito()* cascade;

*Create function check\_Invito() RETURNS trigger as $$*

*Begin*

*if((SELECT Servizio.Condiviso From Acquisto, Servizio Where new.acquisto=acquisto.id AND acquisto.servizio=Servizio.codice)='false')*

*then raise Exception 'Servizio non codivisibile';*

*end if;*

*RETURN new;*

*END*

*$$ LANGUAGE plpgsql;*

*CREATE TRIGGER check\_inserimentoInvito*

*BEFORE INSERT ON Invito*

*FOR EACH ROW EXECUTE procedure check\_Invito();*